

PREFEITURA MUNICIPAL DE JAGUARETAMA  
SECRETARIA DA INFRAESTRUTURA DO MUNICÍPIO



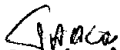
Rodovia: Municipal

Trecho : Jaguaretama - Polo Bezerra de Menezes

Extensão: 11,10km

PROJETO FINAL DE ENGENHARIA  
PARA RESTAURAÇÃO E MELHORAMENTO

VOLUME 3  
NOTA DE SERVIÇOS E CÁLCULO DE VOLUMES

  
**Thiago Douglas da Costa**  
Engenheiro Civil  
CREA 211501802-8

Jaguaretama  
Abril/2019

PREFEITURA MUNICIPAL DE JAGUARETAMA  
SECRETARIA DA INFRAESTRUTURA



TRECHO: JAGUARETAMA – POLO BEZERRA DE MENEZES  
RODOVIA : MUNICIPAL  
EXTENSÃO : 11,10 km

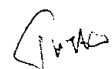
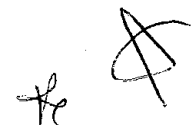
PROJETO FINAL DE ENGENHARIA

**VOLUME 3**

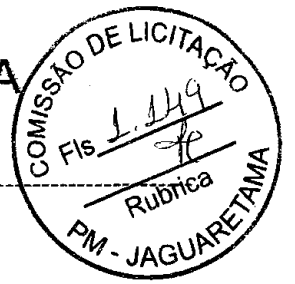
NOTA DE SERVIÇOS E CÁLCULO DE VOLUMES

ABRIL / 2019

  
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Engenheiro Civil  
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# PREFEITURA MUNICIPAL DE JAGUARETAMA



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**ÍNDICE**

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# PREFEITURA MUNICIPAL DE JAGUARETAMA



**Mapa de Situação**

**Apresentação**


**Notas de Serviços**

**Traçado Horizontal**

**Cálculo de Volumes de Materiais**

**Traçado Vertical**

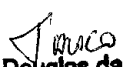
**Resumo Geral do Movimento de Materiais.**

  
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# PREFEITURA MUNICIPAL DE JAGUARETAMA



## 1 - MAPA DE SITUAÇÃO

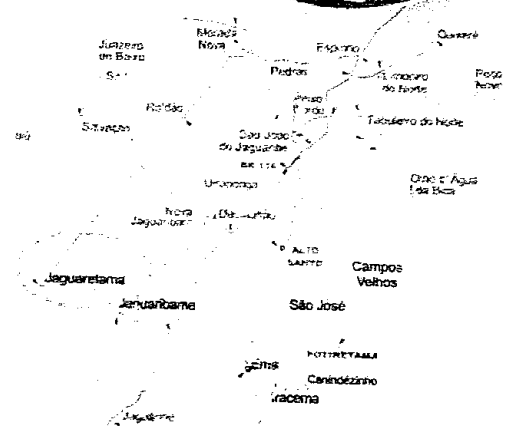
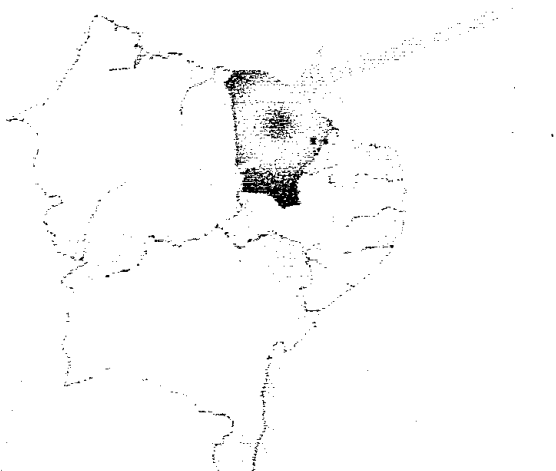
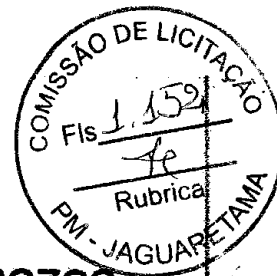
  
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# MAPA DE SITUAÇÃO

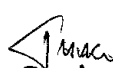
**CIDADE:** Jaguaretama


**Trecho:** Jaguaretama – Polo Bezerra de Menezes

**Extensão Total:** 11,10km

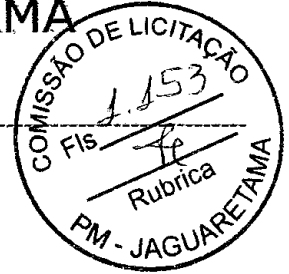


<b>MAPA DE SITUAÇÃO</b>			
PROJETO DE ENGENHARIA PARA FAZIMENTO E REVESTIMENTO ASFALTICO EM JAGUARETAMA	TRECHO JAGUARETAMA - POLO EXTENSÃO: 11,10km		ESCALA: s/ escala
			DATA: ABR/18

  
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 JAGUARETAMA

# PREFEITURA MUNICIPAL DE JAGUARETAMA



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## 2 - APRESENTAÇÃO

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## 2 - APRESENTAÇÃO

A **PREFEITURA MUNICIPAL DE JAGUARETAMA-CE**, com sede à Rua Tristão Gonçalves, nº 185 – Centro, tem a honra de apresentar o Projeto Final de Engenharia para Implantação da Rodovia Municipal do trecho: **Jaguetama – Polo Bezerra de Menezes**, com extensão de **11,10 Km**, que se trata do Projeto de Engenharia para Restauração e Pavimentação da Rodovia Municipal, localizada com início no entroncamento com a CE-371 e finaliza no Polo Bezerra de Menezes.

O trecho possui uma razoável trafegabilidade, constitui-se de uma rodovia de revestimento primário já bastante danificada e desenvolve-se em região bastante ondulada, composto de poucas curvas horizontais.

No início do trecho existe uma interseção, no entroncamento com a CE-173, que deverá ser elaborada o projeto de sinalização de acesso ao Polo Bezerra de Menezes, como também verificar a distância de visibilidade no acesso ao Polo.

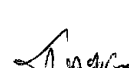
O Projeto da Restauração, objetiva primordialmente dotar a região de uma boa infraestrutura viária, permitindo uma melhoria no tráfego em condições de conforto e segurança aos seus usuários, bem como calculada sua estrutura do pavimento novo que possa suportar as cargas que sobre ele incidirão durante a sua vida útil, ou seja, por um período mínimo de 10 anos; fazendo tudo isso de acordo com as normas e especificações das obras rodoviárias desse nível.


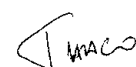
O Projeto Final é apresentado em 01 (uma) via e consta dos seguintes Volumes:

- \* **Volume 1** – Relatório do Projeto e Documentos para Concorrência (Tamanho A-4)
- \* **Volume 2** – Projeto de Execução (Tamanho A-3)
- \* **Volume 3** – **Notas de Serviço e Cálculo de Volumes (Tamanho A-4)**
- \* **Volume 4** – Estudos Geotécnicos (Tamanho A-4)
- \* **Volume 5** – Orçamento, Memória Justificativa e Plano de Execução da Obra (Tamanho A-4)

Neste Volume será apresentado o **Volume 3 – Notas de Serviço e Cálculo de Volumes**, que é apresentado no formato A-4 e apresentam todas as informações necessárias após nivelamento do eixo e seccionamento a cada 20m para elaboração das notas de serviço, Mapa de Cubação, em conformidade com o Manual de Serviços para Estudos e Projetos Rodoviários do DER e as Diretriz Básicas para Elaboração de Estudos e Projetos Rodoviários do DNIT. Constando das seguintes informações:

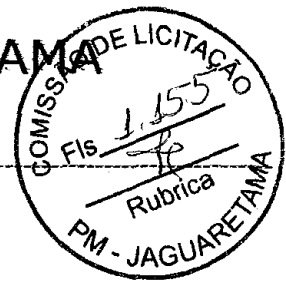
- **Mapa de Situação**
- **Notas de Serviços**
- **Traçado Horizontal (Locação)**
- **Cálculo de Volumes de Materiais**
- **Traçado Vertical (Greide do Projeto)**
- **Resumo Geral do Movimento de Materiais**

  
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# PREFEITURA MUNICIPAL DE JAGUARETAMA



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## 3 - NOTAS DE SERVIÇOS

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**NOTA DE SERVIÇO DE TERRAPLENAGEM**

ESTACA	LADO ESQUERDO						EIXO						LADO DIREITO										
	OFFSET			BORDO			COTA DO TERRENO			COTA DO PROJETO			DIFERENÇA DE COTAS			BORDO			OFFSET				
	COTA	DIST	%	COTA	DIST	%	COTA DO TERRENO	%	COTA DO PROJETO	DIFERENÇA DE COTAS	DIST	%	COTA	DIST	%	DIST	COTA	DIST	%	COTA	DIST	%	
0							127,031		127,031	0,000													
1	126,864	5,55	-3	127,008	4,60	-3	127,030		127,146	0,116						4,60	127,008	5,55	-3	127,008	5,55	-3	125,595
2	127,132	6,20	-3	127,266	4,60	-3	127,318		127,404	0,086						4,60	127,266	6,20	-3	127,266	6,20	-3	125,908
3	127,652	7,00	-3	127,673	4,60	-3	127,862		127,811	-0,051						4,60	127,673	7,00	-3	127,673	7,00	-3	126,447
4	128,465	7,50	-3	128,229	4,60	-3	128,690		128,367	-0,323						4,60	128,229	7,50	-3	128,229	7,50	-3	127,266
5	129,362	7,50	-3	128,934	4,60	-3	129,587		129,072	-0,515						4,60	128,934	7,50	-3	128,934	7,50	-3	128,155
6	130,322	6,50	-3	129,789	4,60	-3	130,517		129,927	-0,590						4,60	129,789	6,50	-3	129,789	6,50	-3	129,075
7	131,293	5,75	-3	130,792	4,60	-3	131,465		130,930	-0,535						4,60	130,792	5,75	-3	130,792	5,75	-3	130,014
8	132,690	5,55	-3	131,944	4,60	-3	132,856		132,082	-0,774						4,60	131,944	5,55	-3	131,944	5,55	-3	131,391
9	133,252	5,55	-3	133,246	4,60	-3	133,418		133,384	-0,034						4,60	133,246	5,55	-3	133,246	5,55	-3	131,947
10	134,284	6,50	-3	134,675	4,60	-3	134,479		134,813	0,334						4,60	134,675	6,50	-3	134,675	6,50	-3	132,998
11	135,337	8,00	-3	136,119	4,60	-3	135,577		136,257	0,680						4,60	136,119	8,00	-3	136,119	8,00	-3	134,085
12	136,773	5,55	-3	137,564	4,60	-3	136,939		137,702	0,763						4,60	137,564	5,55	-3	137,564	5,55	-3	135,433
13	138,156	6,80	-3	139,009	4,60	-3	138,360		139,147	0,787						4,60	139,009	6,80	-3	139,009	6,80	-3	136,840
14	139,675	7,00	-3	140,453	4,60	-3	139,885		140,591	0,706						4,60	140,453	7,00	-3	140,453	7,00	-3	138,350
15	141,261	7,00	-3	141,898	4,60	-3	141,471		142,036	0,565						4,60	141,898	7,00	-3	141,898	7,00	-3	139,920
16	142,866	6,50	-3	143,342	4,60	-3	143,061		143,480	0,419						4,60	143,342	6,50	-3	143,342	6,50	-3	141,494
17	144,464	5,75	-3	144,787	4,60	-3	144,636		144,925	0,289						4,60	144,787	5,75	-3	144,787	5,75	-3	143,053
18	145,920	5,75	-3	146,228	4,60	-3	146,092		146,366	0,274						4,60	146,228	5,75	-3	146,228	5,75	-3	144,494
19	147,251	5,75	-3	147,504	4,60	-3	147,423		147,642	0,219						4,60	147,504	5,75	-3	147,504	5,75	-3	145,812
20	148,175	6,60	-3	148,527	4,60	-3	148,373		148,665	0,292						4,60	148,527	6,60	-3	148,527	6,60	-3	146,753
21	148,711	7,00	-3	149,296	4,60	-3	148,921		149,434	0,513						4,60	149,296	7,00	-3	149,296	7,00	-3	147,295
22	149,124	7,50	-3	149,813	4,60	-3	149,349		149,951	0,602						4,60	149,813	7,50	-3	149,813	7,50	-3	147,719
23	149,448	7,50	-3	150,075	4,60	-3	149,673		150,213	0,540						4,60	150,075	7,50	-3	150,075	7,50	-3	148,040
24	149,766	7,50	-3	150,085	4,60	-3	149,991		150,223	0,232						4,60	150,085	7,50	-3	150,085	7,50	-3	148,354
25	149,976	6,80	-3	149,841	4,60	-3	150,180		149,979	-0,201						4,60	149,841	6,80	-3	149,841	6,80	-3	148,542
26	149,726	6,00	-3	149,343	4,60	-3	149,906		149,481	-0,425						4,60	149,343	6,00	-3	149,343	6,00	-3	148,270
27	148,610	5,20	-3	148,593	4,60	-3	148,766		148,731	-0,035						4,60	148,593	5,20	-3	148,593	5,20	-3	147,142
28	147,439	5,20	-3	147,589	4,60	-3	147,595		147,727	0,132						4,60	147,589	5,20	-3	147,589	5,20	-3	145,982
29	145,913	5,55	-3	146,331	4,60	-3	146,079		146,469	0,390						4,60	146,331	5,55	-3	146,331	5,55	-3	144,482
30	144,371	5,20	-3	144,821	4,60	-3	144,527		144,959	0,432						4,60	144,821	5,20	-3	144,821	5,20	-3	142,945
31	142,608	5,55	-3	143,113	4,60	-3	142,774		143,251	0,477						4,60	143,113	5,55	-3	143,113	5,55	-3	141,210
32	140,996	5,55	-3	141,390	4,60	-3	141,162		141,528	0,366						4,60	141,390	5,55	-3	141,390	5,55	-3	139,614
33	139,490	5,20	-3	139,668	4,60	-3	139,646		139,806	0,160						4,60	139,668	5,20	-3	139,668	5,20	-3	138,113
34	138,410	5,20	-3	138,179	4,60	-3	138,566		138,317	-0,249						4,60	138,179	5,20	-3	138,179	5,20	-3	137,044
35	137,548	5,20	-3	137,472	4,60	-3	137,704		137,610	-0,094						4,60	137,472	5,20	-3	137,472	5,20	-3	136,190
36	137,241	5,55	-3	137,545	4,60	-3	137,407		137,683	0,276						4,60	137,545	5,55	-3	137,545	5,55	-3	135,896
37	137,467	5,75	-3	137,838	4,60	-3	137,639		137,976	0,337						4,60	137,838	5,75	-3	137,838	5,75	-3	136,128
38	137,718	5,75	-3	138,084	4,60	-3	137,890		138,222	0,332						4,60	138,084	5,75	-3	138,084	5,75	-3	136,374
39	137,509	6,50	-3	137,896	4,60	-3	137,704		138,034	0,330						4,60	137,896	6,50	-3	137,896	6,50	-3	136,190

  
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NOTA DE SERVIÇO DE TERRAPLENAGEM

ESTACA	LADO ESQUERDO				EIXO				LADO DIREITO				
	COTA	DIST	OFFSET	BORDO	COTA	PROJETO	VERMELHA	%	COTA	DIST	OFFSET	BORDO	
40	136,741	7,60	137,192	4,60	-3	136,969	137,330	0,361	-3	4,60	137,192	7,60	135,463
41	135,719	7,60	136,196	4,60	-3	135,947	136,334	0,387	-3	4,60	136,196	7,60	134,451
42	134,713	7,50	135,199	4,60	-3	134,938	135,337	0,399	-3	4,60	135,199	7,50	133,452
43	133,779	6,80	134,202	4,60	-3	133,983	134,340	0,357	-3	4,60	134,202	6,80	132,507
44	132,825	6,80	133,237	4,60	-3	133,029	133,375	0,346	-3	4,60	133,237	6,80	131,562
45	132,463	7,00	132,684	4,60	-3	132,673	132,822	0,149	-3	4,60	132,684	7,00	131,210
46	132,192	7,40	132,649	4,60	-3	132,414	132,787	0,373	-3	4,60	132,649	7,40	130,953
47	132,521	7,00	132,944	4,60	-3	132,731	133,082	0,351	-3	4,60	132,944	7,00	131,267
48	132,784	7,50	133,120	4,60	-3	133,009	133,258	0,249	-3	4,60	133,120	7,50	131,542
49	132,545	7,50	132,791	4,60	-3	132,770	132,929	0,159	-3	4,60	132,791	7,50	131,306
50	131,678	7,00	131,928	4,60	-3	131,888	132,066	0,178	-3	4,60	131,928	7,00	130,433
51	130,216	5,75	130,532	4,60	-3	130,388	130,670	0,282	-3	4,60	130,532	5,75	128,948
52	128,399	5,55	128,833	4,60	-3	128,565	128,971	0,406	-3	4,60	128,833	5,55	127,143
53	126,601	6,50	127,133	4,60	-3	126,796	127,271	0,475	-3	4,60	127,133	6,50	125,391
54	124,879	6,00	125,433	4,60	-3	125,059	125,571	0,512	-3	4,60	125,433	6,00	123,672
55	123,193	5,55	123,733	4,60	-3	123,359	123,871	0,512	-3	4,60	123,733	5,55	121,989
56	121,545	5,75	122,033	4,60	-3	121,717	122,171	0,454	-3	4,60	122,033	5,75	120,363
57	119,941	7,00	120,441	4,60	-3	120,151	120,579	0,428	-3	4,60	120,441	7,00	118,813
58	118,845	7,40	119,080	4,60	-3	119,067	119,218	0,151	-3	4,60	119,080	7,40	117,740
59	117,940	7,40	117,951	4,60	-3	118,162	118,089	-0,073	-3	4,60	117,951	7,40	116,844
60	117,351	7,00	117,053	4,60	-3	117,561	117,191	-0,370	-3	4,60	117,053	7,00	116,249
61	116,849	7,00	116,387	4,60	-3	117,059	116,525	-0,534	-3	4,60	116,387	7,00	115,752
62	116,554	6,50	115,952	4,60	-3	116,749	116,090	-0,659	-3	4,60	115,952	6,50	115,445
63	116,250	6,20	115,748	4,60	-3	116,436	115,886	-0,550	-3	4,60	115,748	6,20	115,135
64	116,121	6,20	115,776	4,60	-3	116,307	115,914	-0,393	-3	4,60	115,776	6,20	115,007
65	115,984	7,00	116,035	4,60	-3	116,194	116,173	-0,021	-3	4,60	116,035	7,00	114,895
66	116,376	7,50	116,525	4,60	-3	116,601	116,663	0,062	-3	4,60	116,525	7,50	115,298
67	116,871	7,50	117,247	4,60	-3	117,096	117,385	0,289	-3	4,60	117,247	7,50	115,788
68	117,690	7,00	118,200	4,60	-3	117,900	118,338	0,438	-3	4,60	118,200	7,00	116,584
69	118,795	6,80	118,359	4,60	-3	118,999	118,497	-0,502	-3	4,60	118,359	6,80	117,672
70	120,016	6,80	120,551	4,60	-3	120,220	120,689	0,469	-3	4,60	120,551	6,80	118,881
71	120,794	6,00	121,702	4,60	-3	120,974	121,840	0,866	-3	4,60	121,702	6,00	119,628
72	121,571	5,20	122,305	4,60	-3	121,727	122,443	0,716	-3	4,60	122,305	5,20	120,373
73	121,523	5,20	122,208	4,60	-3	121,679	122,346	0,667	-3	4,60	122,208	5,20	120,326
74	120,999	5,20	121,416	4,60	-3	121,155	121,554	0,399	-3	4,60	121,416	5,20	119,807
75	119,915	5,55	120,334	4,60	-3	120,081	120,472	0,391	-3	4,60	120,334	5,55	118,744
76	118,918	5,75	119,253	4,60	-3	119,090	119,391	0,301	-3	4,60	119,253	5,75	117,762
77	118,947	6,00	118,611	4,60	-3	119,127	118,749	-0,378	-3	4,60	118,611	6,00	117,794
78	118,990	5,75	118,878	4,60	-3	119,162	119,016	-0,146	-3	4,60	118,878	5,75	117,816
79	119,871	5,75	120,055	4,60	-3	120,043	120,193	0,150	-3	5,00	120,043	5,75	118,614

Thiago Douglas da Costa  
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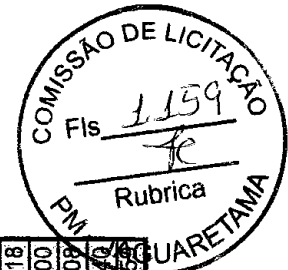
*[Handwritten signatures and initials]*



**NOTA DE SERVIÇO DE TERRAPLENAGEM**


ESTACA	LADO ESQUERDO				EIXO				LADO DIREITO					
	COTA	OFFSET	COTA	BORDO	COTA	PROJETO	VERMELHA	%	COTA	PROJETO	VERMELHA	%	OFFSET	DIST
80	121,223	6,00	121,702	4,60	-3	121,403	121,840	0,437	-3	4,60	121,702	6,00	120,052	
81	122,814	6,80	123,350	4,60	-3	123,018	123,488	0,470	-3	4,60	123,350	6,80	121,651	
82	124,509	7,00	124,998	4,60	-3	124,719	125,136	0,417	-3	4,60	124,998	7,00	123,335	
83	126,227	6,50	126,646	4,60	-3	126,422	126,784	0,362	-3	4,60	126,646	6,50	125,021	
84	127,959	5,55	128,294	4,60	-3	128,125	128,432	0,307	-3	4,60	128,294	5,55	126,707	
85	129,692	5,55	129,939	4,60	-3	129,858	130,077	0,219	-3	4,60	129,939	5,55	128,423	
86	130,789	6,00	131,075	4,60	-3	130,969	131,213	0,244	-3	4,60	131,075	6,00	129,523	
87	131,145	5,55	131,346	4,60	-3	131,311	131,484	0,173	-3	4,60	131,346	5,55	129,861	
88	130,207	6,20	130,757	4,60	-3	130,393	130,895	0,502	-3	4,60	130,757	6,20	128,952	
89	129,289	6,00	129,812	4,60	-3	129,469	129,950	0,481	-3	4,60	129,812	6,00	128,038	
90	128,418	6,50	128,867	4,60	-3	128,613	129,005	0,392	-3	4,60	128,867	6,50	127,190	
91	127,809	6,50	127,981	4,60	-3	128,004	128,119	0,115	-3	4,60	127,981	6,50	126,587	
92	127,456	7,00	127,556	4,60	-3	127,666	127,694	0,028	-3	4,60	127,556	7,00	126,253	
93	127,714	6,80	127,667	4,60	-3	127,918	127,905	-0,113	-3	4,60	127,667	6,80	126,502	
94	127,966	6,80	128,313	4,60	-3	128,170	128,451	0,281	-3	4,60	128,313	6,80	126,752	
95	128,869	6,20	129,245	4,60	-3	129,055	129,383	0,328	-3	4,60	129,245	6,20	127,628	
96	129,725	6,50	130,176	4,60	-3	129,920	130,314	0,394	-3	4,60	130,176	6,50	128,484	
97	130,289	6,50	131,068	4,60	-3	130,484	131,206	0,722	-3	4,60	131,068	6,50	129,043	
98	130,887	5,75	131,377	4,60	-3	131,059	131,515	0,456	-3	4,60	131,377	5,75	129,612	
99	130,423	6,00	130,926	4,60	-3	130,603	131,064	0,461	-3	4,60	130,926	6,00	129,160	
100	129,306	6,50	129,719	4,60	-3	129,501	129,857	0,356	-3	4,60	129,719	6,50	128,069	
101	127,715	7,00	128,183	4,60	-3	127,925	128,321	0,396	-3	4,60	128,183	7,00	126,509	
102	126,189	7,00	126,648	4,60	-3	126,399	126,786	0,387	-3	4,60	126,648	7,00	124,998	
103	124,634	7,60	125,113	4,60	-3	124,862	125,251	0,389	-3	4,60	125,113	7,60	123,477	
104	123,752	7,40	123,609	4,60	-3	123,974	123,747	-0,227	-3	4,60	123,609	7,40	122,598	
105	123,034	7,00	122,581	4,60	-3	123,244	122,719	-0,525	-3	4,60	122,581	7,00	121,875	
106	122,662	6,50	122,174	4,60	-3	122,857	122,312	-0,545	-3	4,60	122,174	6,50	121,492	
107	122,784	6,00	122,387	4,60	-3	122,964	122,525	-0,439	-3	4,60	122,387	6,00	121,598	
108	123,047	6,00	123,220	4,60	-3	123,227	123,358	0,131	-3	4,60	123,220	6,00	121,858	
109	123,904	6,00	124,324	4,60	-3	124,084	124,462	0,378	-3	4,60	124,324	6,00	122,707	
110	124,810	6,00	125,427	4,60	-3	124,990	125,565	0,575	-3	4,60	125,427	6,00	123,603	
111	126,173	6,00	126,530	4,60	-3	126,353	126,668	0,315	-3	4,60	126,530	6,00	124,953	
112	127,359	6,00	127,634	4,60	-3	127,539	127,772	0,233	-3	4,60	127,634	6,00	126,127	
113	128,405	6,00	128,737	4,60	-3	128,585	128,875	0,290	-3	4,60	128,737	6,00	127,163	
114	129,502	6,00	129,841	4,60	-3	129,682	129,979	0,297	-3	4,60	129,841	6,00	128,249	
115	130,471	6,00	130,944	4,60	-3	130,651	131,082	0,431	-3	4,60	130,944	6,00	129,208	
116	131,726	7,00	132,047	4,60	-3	131,936	132,185	0,249	-3	4,60	132,047	7,00	130,480	
117	132,705	7,00	133,151	4,60	-3	132,915	133,289	0,374	-3	4,60	133,151	7,00	131,449	
118	133,956	6,80	134,254	4,60	-3	134,160	134,392	0,232	-3	4,60	134,254	6,80	132,692	
119	135,175	6,20	135,358	4,60	-3	135,361	135,496	0,135	-3	5,00	135,346	6,20	133,899	

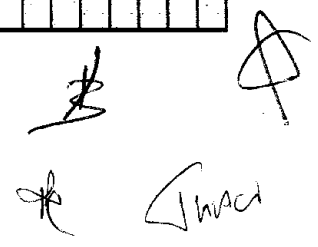
  
 Thiago Douglas da Costa  
 Engenheiro Civil  
 CREA 211501802-8  
  
  

**NOTA DE SERVIÇO DE TERRAPLENAGEM**

ESTACA	LADO ESQUERDO						EIXO						LADO DIREITO								
	OFFSET			BORDO			COTA DO TERRENO			COTA DO PROJETO			DIFERENÇA VERMELHA			BORDO			OFFSET		
	COTA	DIST	%	COTA	DIST	%	COTA	TERRENO	%	PROJETO	%	DIFERENÇA	VERMELHA	%	DIST	COTA	DIST	%	COTA	DIST	%
120	136,375	5,55	-3	136,461	4,60	-3	136,541	136,599	137,033	0,058	-3	136,461	5,55	135,039							
121	137,268	5,20	-3	137,565	4,60	-3	137,424	137,703	0,279	-3	137,565	5,20	135,913								
122	138,128	6,00	-3	138,520	4,60	-3	138,308	138,658	0,350	-3	138,520	6,00	136,788								
123	138,694	6,80	-3	139,008	4,60	-3	138,898	139,146	0,248	-3	139,008	6,80	137,372								
124	138,862	7,00	-3	139,017	4,60	-3	139,072	139,155	0,083	-3	139,017	7,00	137,545								
125	138,484	6,50	-3	138,547	4,60	-3	138,679	138,685	0,006	-3	138,547	6,50	137,156								
126	137,269	5,55	-3	137,598	4,60	-3	137,435	137,736	0,301	-3	137,598	5,55	135,924								
127	135,654	5,55	-3	136,169	4,60	-3	135,820	136,307	0,487	-3	136,169	5,55	134,325								
128	133,768	6,00	-3	134,409	4,60	-3	133,948	134,547	0,599	-3	134,409	6,00	132,472								
129	132,194	5,55	-3	132,639	4,60	-3	132,360	132,777	0,417	-3	132,639	5,55	130,900								
130	130,564	6,20	-3	130,868	4,60	-3	130,750	131,006	0,256	-3	130,868	6,20	129,306								
131	128,782	6,00	-3	129,097	4,60	-3	128,962	129,235	0,273	-3	129,097	6,00	127,536								
132	126,958	6,50	-3	127,326	4,60	-3	127,153	127,464	0,311	-3	127,326	6,50	125,745								
133	125,354	6,50	-3	125,555	4,60	-3	125,549	125,693	0,144	-3	125,555	6,50	124,157								
134	123,336	7,00	-3	123,785	4,60	-3	123,546	123,923	0,377	-3	123,785	7,00	122,174								
135	121,522	6,80	-3	122,014	4,60	-3	121,726	122,152	0,426	-3	122,014	6,80	120,372								
136	119,614	6,80	-3	120,243	4,60	-3	119,818	120,381	0,563	-3	120,243	6,80	118,483								
137	118,104	6,20	-3	118,472	4,60	-3	118,290	118,610	0,320	-3	118,472	6,20	116,970								
138	117,010	6,50	-3	116,918	4,60	-3	117,205	117,056	-0,149	-3	116,918	6,50	115,896								
139	116,271	6,50	-3	116,067	4,60	-3	116,466	116,205	-0,261	-3	116,067	6,50	115,165								
140	115,888	5,75	-3	115,908	4,60	-3	116,060	116,046	-0,014	-3	115,908	5,75	114,763								
141	115,840	6,00	-3	115,939	4,60	-3	116,020	116,077	0,057	-3	115,939	6,00	114,723								
142	115,792	6,50	-3	115,969	4,60	-3	115,987	116,107	0,120	-3	115,969	6,50	114,691								
143	115,934	7,00	-3	116,006	4,60	-3	116,144	116,144	0,000	-3	116,006	7,00	114,846								
144	116,356	7,00	-3	116,428	4,60	-3	116,566	116,566	0,000	-3	116,428	7,00	115,264								
145	117,573	7,60	-3	117,886	4,60	-3	117,801	118,024	0,223	-3	117,886	7,60	116,486								
146	118,699	7,40	-3	119,343	4,60	-3	118,921	119,481	0,560	-3	119,343	7,40	117,595								
147	120,265	7,00	-3	120,801	4,60	-3	120,475	120,939	0,464	-3	120,801	7,00	119,134								
148	121,902	6,50	-3	122,240	4,60	-3	122,097	122,378	0,281	-3	122,240	6,50	120,739								
149	123,223	6,00	-3	123,540	4,60	-3	123,403	123,678	0,275	-3	123,540	6,00	122,032								
150	124,347	6,00	-3	124,676	4,60	-3	124,527	124,814	0,287	-3	124,676	6,00	123,145								
151	125,114	6,00	-3	125,649	4,60	-3	125,294	125,787	0,493	-3	125,649	6,00	123,904								
152	125,860	6,00	-3	126,458	4,60	-3	126,040	126,596	0,556	-3	126,458	6,00	124,643								
153	126,565	6,00	-3	127,105	4,60	-3	126,745	127,243	0,498	-3	127,105	6,00	125,341								
154	127,216	6,00	-3	127,588	4,60	-3	127,396	127,726	0,330	-3	127,588	6,00	125,985								
155	127,653	6,00	-3	127,984	4,60	-3	127,833	128,122	0,289	-3	127,984	6,00	126,418								
156	128,039	6,00	-3	128,380	4,60	-3	128,219	128,518	0,299	-3	128,380	6,00	126,800								
157	128,350	6,00	-3	128,777	4,60	-3	128,530	128,915	0,385	-3	128,777	6,00	127,109								
158	128,655	7,00	-3	129,173	4,60	-3	128,865	129,311	0,446	-3	129,173	7,00	127,440								
159	129,078	7,00	-3	129,569	4,60	-3	129,288	129,707	0,419	-3	129,569	7,00	127,850								

  
**Thiago Douglas da Costa**  
 Engenheiro CMI  
 CREA 211501802-8





NOTA DE SERVIÇO DE TERRAPLENAGEM

ESTACA	LADO ESQUERDO				EIXO				LADO DIREITO					
	OFFSET		BORDO		COTADO		DIFERENÇA		COTADO		BORDO		OFFSET	
	COTA	DIST	COTA	DIST	TERRENO	%	VERMELHA	%	PROJETO	DIST	COTA	DIST	COTA	DIST
16	129,507	6,80	129,965	4,60	3	129,711	3	130,103	0,392	3	129,965	4,60	129,965	6,80
17	129,947	6,20	130,362	4,60	3	130,133	3	130,500	0,367	3	130,362	4,60	130,362	6,20
18	130,334	6,00	130,754	4,60	3	130,514	3	130,892	0,378	3	130,754	4,60	130,754	6,00
19	130,366	6,00	130,922	4,60	3	130,546	3	131,060	0,514	3	130,922	4,60	130,922	6,00
20	130,362	6,00	130,743	4,60	3	130,542	3	130,881	0,339	3	130,743	4,60	130,743	6,00
21	129,939	6,00	130,291	4,60	3	130,119	3	130,429	0,310	3	130,291	4,60	130,291	6,00
22	129,382	7,00	129,821	4,60	3	129,592	3	129,959	0,367	3	129,821	4,60	129,821	7,00
23	129,253	7,00	129,565	4,60	3	129,463	3	129,703	0,240	3	129,565	4,60	129,565	7,00
24	129,222	6,80	129,646	4,60	3	129,426	3	129,784	0,358	3	129,646	4,60	129,646	6,80
25	129,718	6,20	130,064	4,60	3	129,904	3	130,202	0,298	3	130,064	4,60	130,064	6,20
26	130,431	5,55	130,819	4,60	3	130,597	3	130,957	0,360	3	130,819	4,60	130,819	5,55
27	131,437	5,20	131,885	4,60	3	131,593	3	132,023	0,430	3	131,885	4,60	131,885	5,20
28	132,718	6,00	133,013	4,60	3	132,898	3	133,151	0,253	3	133,013	4,60	133,013	6,00
29	133,865	6,80	134,140	4,60	3	134,009	3	134,278	0,209	3	134,140	4,60	134,140	6,80
30	135,009	7,00	135,267	4,60	3	135,219	3	135,405	0,186	3	135,267	4,60	135,267	7,00
31	135,924	6,50	136,344	4,60	3	136,119	3	136,482	0,363	3	136,344	4,60	136,344	6,50
32	136,846	5,55	137,163	4,60	3	137,012	3	137,301	0,289	3	137,163	4,60	137,163	5,55
33	137,338	5,55	137,700	4,60	3	137,504	3	137,838	0,334	3	137,700	4,60	137,700	5,55
34	137,513	6,00	137,957	4,60	3	137,693	3	138,095	0,402	3	137,957	4,60	137,957	6,00
35	137,716	5,55	137,932	4,60	3	137,882	3	138,070	0,188	3	137,932	4,60	137,932	5,55
36	137,680	6,20	137,626	4,60	3	137,866	3	137,764	-0,102	3	137,626	4,60	137,626	6,20
37	137,165	6,00	137,040	4,60	3	137,345	3	137,178	-0,167	3	137,040	4,60	137,040	6,00
38	136,588	6,50	136,173	4,60	3	136,783	3	136,311	-0,472	3	136,173	4,60	136,173	6,50
39	135,284	6,50	135,024	4,60	3	135,479	3	135,162	-0,317	3	135,024	4,60	135,024	6,50
40	133,964	7,00	133,645	4,60	3	134,174	3	133,783	-0,391	3	133,645	4,60	133,645	7,00
41	132,771	6,80	132,246	4,60	3	132,975	3	132,384	-0,591	3	132,246	4,60	132,246	6,80
42	131,722	6,80	131,063	4,60	3	131,926	3	131,201	-0,725	3	131,063	4,60	131,063	6,80
43	130,758	6,20	130,244	4,60	3	130,944	3	130,382	-0,562	3	130,244	4,60	130,244	6,20
44	130,107	6,50	129,788	4,60	3	130,302	3	129,926	-0,376	3	129,788	4,60	129,788	6,50
45	129,582	6,50	129,479	4,60	3	129,777	3	129,617	-0,160	3	129,479	4,60	129,479	6,50
46	129,301	5,75	129,174	4,60	3	129,473	3	129,309	-0,164	3	129,174	4,60	129,174	5,75
47	129,040	6,00	128,862	4,60	3	129,220	3	129,000	-0,220	3	128,862	4,60	128,862	6,00
48	128,772	6,50	128,553	4,60	3	128,967	3	128,691	-0,276	3	128,553	4,60	128,553	6,50
49	128,506	7,00	128,260	4,60	3	128,716	3	128,398	-0,318	3	128,260	4,60	128,260	7,00
50	128,267	7,00	128,079	4,60	3	128,477	3	128,217	-0,260	3	128,079	4,60	128,079	7,00
51	128,127	7,60	128,164	0,00	3	128,355	3	128,164	-0,191	3	128,164	0,00	128,164	7,60
52	128,051	7,40	128,100	4,60	3	128,273	3	128,238	-0,035	3	128,100	4,60	128,100	7,40
53	128,002	7,00	128,302	4,60	3	128,212	3	128,440	0,228	3	128,302	4,60	128,302	7,00
54	127,993	6,50	128,632	4,60	3	128,188	3	128,770	0,582	3	128,632	4,60	128,632	6,50
55	128,318	6,00	129,089	4,60	3	128,498	3	129,227	0,729	3	129,089	4,60	129,089	6,00

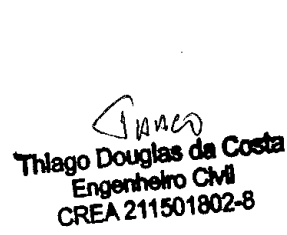
Thiago Douglas de Costa  
Engenheiro Civil  
CREA 211501802-8

*[Handwritten signatures and initials]*



**NOTA DE SERVIÇO DE TERRAPLENAGEM**

ESTACA	LADO ESQUERDO				EIXO				LADO DIREITO			
	OFFSET		BORDO		COTADO		DIFERENÇA		BORDO		OFFSET	
	DIST	COTA	DIST	%	TERRENO	PROJETO	VERMELHA	%	DIST	COTA	DIST	COTA
56	6,00	129,097	4,60	-3	129,277	129,812	0,535	-3	4,60	129,674	6,00	127,848
57	6,00	130,065	4,60	-3	130,245	130,525	0,280	-3	4,60	130,387	6,00	128,806
58	6,00	131,032	4,60	-3	131,212	131,365	0,153	-3	4,60	131,227	6,00	129,763
59	6,00	132,000	4,60	-3	132,180	132,333	0,153	-3	4,60	132,195	6,00	130,722
60	6,00	133,268	4,60	-3	133,448	133,429	-0,019	-3	4,60	133,291	6,00	131,977
61	6,00	134,677	4,60	-3	134,857	134,652	-0,205	-3	4,60	134,514	6,00	133,372
62	6,00	136,086	4,60	-3	136,266	135,987	-0,279	-3	4,60	135,849	6,00	134,767
63	6,00	137,374	4,60	-3	137,554	137,338	-0,216	-3	4,60	137,200	6,00	136,042
64	7,00	138,516	4,60	-3	138,726	138,689	-0,037	-3	4,60	138,551	7,00	137,202
65	7,00	139,735	4,60	-3	139,945	140,040	0,095	-3	4,60	139,902	7,00	138,409
66	6,80	141,201	4,60	-3	141,405	141,391	-0,014	-3	4,60	141,253	6,80	139,854
67	6,20	142,633	4,60	-3	142,819	142,742	-0,077	-3	4,60	142,604	6,20	141,254
68	6,00	144,035	4,60	-3	144,215	144,093	-0,122	-3	4,60	143,955	6,00	142,636
69	6,00	145,244	4,60	-3	145,424	145,444	0,020	-3	4,60	145,306	6,00	143,833
70	6,00	146,436	4,60	-3	146,616	146,789	0,173	-3	4,60	146,651	6,00	145,013
71	6,00	147,628	4,60	-3	147,808	148,060	0,252	-3	4,60	147,922	6,00	146,193
72	7,00	148,658	4,60	-3	148,868	149,241	0,373	-3	4,60	149,103	7,00	147,243
73	7,00	149,641	4,60	-3	149,851	150,332	0,481	-3	4,60	150,194	7,00	148,216
74	6,80	150,604	4,60	-3	150,808	151,332	0,524	-3	4,60	151,194	6,80	149,163
75	6,20	151,580	4,60	-3	151,766	152,241	0,475	-3	4,60	152,103	6,20	150,112
76	7,20	152,487	4,60	-3	152,703	153,060	0,357	-3	4,60	152,922	7,20	151,039
77	8,20	153,352	4,60	-3	153,598	153,789	0,191	-3	4,60	153,651	8,20	151,925
78	9,20	154,144	4,60	-3	154,420	154,427	0,007	-3	4,60	154,289	9,20	152,739
79	10,20	154,886	4,60	-3	155,192	154,974	-0,218	-3	4,60	154,836	10,20	153,503
80	5,55	155,754	4,60	-3	155,920	155,431	-0,489	-3	4,60	155,293	5,55	154,224
81	5,20	156,042	4,60	-3	156,198	155,798	-0,400	-3	4,60	155,660	5,20	154,499
82	6,00	156,158	4,60	-3	156,338	156,074	-0,264	-3	4,60	155,936	6,00	154,638
83	6,80	156,274	4,60	-3	156,478	156,286	-0,192	-3	4,60	156,148	6,80	154,777
84	7,00	156,408	4,60	-3	156,618	156,474	-0,144	-3	4,60	156,336	7,00	154,915
85	6,50	156,563	4,60	-3	156,758	156,641	-0,117	-3	4,60	156,503	6,50	155,054
86	5,55	156,733	4,60	-3	156,899	156,784	-0,115	-3	4,60	156,646	5,55	155,193
87	5,55	156,873	4,60	-3	157,039	156,905	-0,134	-3	4,60	156,767	5,55	155,332
88	6,00	156,999	4,60	-3	157,179	157,003	-0,176	-3	4,60	156,865	6,00	155,471
89	5,55	157,153	4,60	-3	157,319	157,079	-0,240	-3	4,60	156,941	5,55	155,609
90	6,20	157,273	4,60	-3	157,459	157,132	-0,327	-3	4,60	156,994	6,20	155,748
91	6,00	157,419	4,60	-3	157,599	157,162	-0,437	-3	4,60	157,024	6,00	155,886
92	6,50	157,545	4,60	-3	157,740	157,170	-0,570	-3	4,60	157,032	6,50	156,026
93	6,50	157,580	4,60	-3	157,775	157,155	-0,620	-3	4,60	157,017	6,50	156,061
94	7,00	157,533	4,60	-3	157,743	157,118	-0,625	-3	4,60	156,980	7,00	156,029
95	6,80	157,428	4,60	-3	157,632	157,058	-0,574	-3	4,60	156,920	6,80	155,919

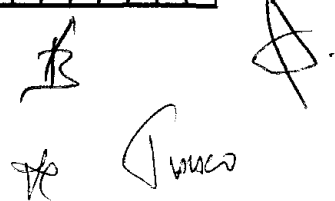
  
**Thiago Douglas da Costa**  
 Engenheiro Civil  
 CREA 211501802-8



**NOTA DE SERVIÇO DE TERRAPLENAGEM**

ESTACA	LADO ESQUERDO						EIXO						LADO DIREITO										
	OFFSET			BORDO			COTADO			PROJETO			DIFERENÇA VERMELHA			BORDO			COTA				
	DIST	COTA	%	DIST	COTA	%	TERRENO	COTADO	%	PROJETO	COTADO	%	DIST	COTA	%	DIST	COTA	%	DIST	COTA	%	DIST	COTA
96	240	157,291	6,80	156,837	4,60	-3	157,495	156,975	-3	156,975	156,975	-0,520	-3	4,60	156,837	6,80	155,783						
97	241	157,098	6,20	156,732	4,60	-3	157,284	156,870	-3	156,870	156,870	-0,414	-3	4,60	156,732	6,20	155,575						
98	242	156,837	6,50	156,604	4,60	-3	157,032	156,742	-3	156,742	156,742	-0,290	-3	4,60	156,604	6,50	155,325						
99	243	156,676	6,50	156,453	4,60	-3	156,871	156,591	-3	156,591	156,591	-0,280	-3	4,60	156,453	6,50	155,166						
100	244	156,424	5,75	156,280	4,60	-3	156,596	156,418	-3	156,418	156,418	-0,178	-3	4,60	156,280	5,75	154,893						
101	245	156,011	6,00	155,084	4,60	-3	156,191	156,222	-3	156,222	156,222	0,031	-3	4,60	156,084	6,00	154,492						
102	246	155,575	6,50	155,866	4,60	-3	155,770	156,004	-3	156,004	156,004	0,234	-3	4,60	155,866	6,50	154,076						
103	247	155,293	7,00	155,625	4,60	-3	155,529	155,763	-3	155,763	155,763	0,260	-3	4,60	155,625	7,00	153,811						
104	248	155,054	7,00	155,361	4,60	-3	155,264	155,499	-3	155,499	155,499	0,235	-3	4,60	155,361	7,00	153,575						
105	249	154,623	7,60	155,075	4,60	-3	154,851	155,213	-3	155,213	155,213	0,362	-3	4,60	155,075	7,60	153,166						
106	250	154,326	7,40	154,766	4,60	-3	154,548	154,904	-3	154,904	154,904	0,356	-3	4,60	154,766	7,40	152,866						
107	251	153,991	7,00	154,434	4,60	-3	154,201	154,572	-3	154,572	154,572	0,371	-3	4,60	154,434	7,00	152,522						
108	252	153,665	6,50	154,089	4,60	-3	153,860	154,227	-3	154,227	154,227	0,367	-3	4,60	154,089	6,50	152,185						
109	253	153,349	6,00	153,743	4,60	-3	153,529	153,881	-3	153,881	153,881	0,352	-3	4,60	153,743	6,00	151,857						
110	254	152,994	6,00	153,398	4,60	-3	153,174	153,536	-3	153,536	153,536	0,362	-3	4,60	153,398	6,00	151,506						
111	255	152,644	6,00	153,052	4,60	-3	152,824	153,190	-3	153,190	153,190	0,366	-3	4,60	153,052	6,00	151,159						
112	256	152,317	6,00	152,707	4,60	-3	152,497	152,845	-3	152,845	152,845	0,348	-3	4,60	152,707	6,00	150,835						
113	257	151,991	6,00	152,361	4,60	-3	152,171	152,499	-3	152,499	152,499	0,328	-3	4,60	152,361	6,00	150,513						
114	258	151,664	6,00	152,015	4,60	-3	151,844	152,153	-3	152,153	152,153	0,309	-3	4,60	152,015	6,00	150,189						
115	259	151,312	6,00	151,670	4,60	-3	151,492	151,808	-3	151,808	151,808	0,316	-3	4,60	151,670	6,00	149,840						
116	260	150,950	6,00	151,324	4,60	-3	151,130	151,462	-3	151,462	151,462	0,332	-3	4,60	151,324	6,00	149,482						
117	261	150,589	6,00	150,979	4,60	-3	150,769	151,117	-3	151,117	151,117	0,348	-3	4,60	150,979	6,00	149,125						
118	262	150,124	7,00	150,633	4,60	-3	150,334	150,771	-3	150,771	150,771	0,437	-3	4,60	150,633	7,00	148,694						
119	263	149,785	7,00	150,288	4,60	-3	149,995	150,426	-3	150,426	150,426	0,431	-3	4,60	150,288	7,00	148,358						
120	264	149,393	6,80	149,942	4,60	-3	149,597	150,080	-3	150,080	150,080	0,483	-3	4,60	149,942	6,80	147,964						
121	265	149,147	6,20	149,597	4,60	-3	149,333	149,735	-3	149,735	149,735	0,402	-3	4,60	149,597	6,20	147,703						
122	266	148,821	6,00	149,251	4,60	-3	149,001	149,389	-3	149,389	149,389	0,388	-3	4,60	149,251	6,00	147,374						
123	267	148,505	6,00	148,905	4,60	-3	148,685	149,043	-3	149,043	149,043	0,358	-3	4,60	148,905	6,00	147,062						
124	268	148,216	6,00	148,594	4,60	-3	148,396	148,732	-3	148,732	148,732	0,336	-3	4,60	148,594	6,00	146,775						
125	269	147,928	6,00	148,416	4,60	-3	148,108	148,554	-3	148,554	148,554	0,446	-3	4,60	148,416	6,00	146,490						
126	270	147,737	7,00	148,381	4,60	-3	147,947	148,519	-3	148,519	148,519	0,572	-3	4,60	148,381	7,00	146,331						
127	271	148,049	7,00	148,487	4,60	-3	148,259	148,625	-3	148,625	148,625	0,366	-3	4,60	148,487	7,00	146,164						
128	272	148,381	6,80	148,734	4,60	-3	148,585	148,872	-3	148,872	148,872	0,287	-3	4,60	148,734	6,80	146,963						
129	273	148,839	6,20	149,123	4,60	-3	149,025	149,261	-3	149,261	149,261	0,236	-3	4,60	149,123	6,20	147,398						
130	274	149,214	7,20	149,653	4,60	-3	149,430	149,791	-3	149,791	149,791	0,361	-3	4,60	149,653	7,20	147,799						
131	275	149,651	8,20	150,263	4,60	-3	149,897	150,401	-3	150,401	150,401	0,504	-3	4,60	150,263	8,20	148,261						
132	276	150,161	9,20	150,872	4,60	-3	150,437	151,010	-3	151,010	151,010	0,573	-3	4,60	150,872	9,20	148,796						
133	277	150,760	10,20	151,482	4,60	-3	151,066	151,620	-3	151,620	151,620	0,554	-3	4,60	151,482	10,20	149,419						
134	278	151,617	5,55	152,092	4,60	-3	151,783	152,230	-3	152,230	152,230	0,447	-3	4,60	152,092	5,55	150,129						
135	279	152,325	5,20	152,701	4,60	-3	152,481	152,839	-3	152,839	152,839	0,358	-3	4,60	152,701	5,20	150,820						

  
 Thiago Douglas da Costa  
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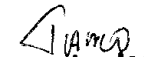



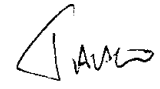





**NOTA DE SERVIÇO DE TERRAPLENAGEM**

ESTACA	LADO ESQUERDO						EIXO						LADO DIREITO						
	OFFSET	COTA	DIST	COTA	DIST	%	COTADO	TERRENO	%	COTA DO	PROJETO	DIFERENÇA	VERMELHA	%	BORDO	DIST	COTA	OFFSET	
136																			
280		152,851	6,00	153,311	4,60	-3	153,031		-3	153,449		0,418		-3	4,60	153,311	6,00	151,364	
281		153,326	6,80	153,846	4,60	-3	153,530		-3	153,984		0,454		-3	4,60	153,846	6,80	151,858	
282		153,602	7,00	154,178	4,60	-3	153,812		-3	154,316		0,504		-3	4,60	154,178	7,00	152,137	
283		153,907	6,50	154,303	4,60	-3	154,102		-3	154,441		0,339		-3	4,60	154,303	6,50	152,424	
284		154,227	5,55	154,222	4,60	-3	154,393		-3	154,360		-0,033		-3	4,60	154,222	5,55	152,712	
285		154,037	5,55	153,935	4,60	-3	154,203		-3	154,073		-0,130		-3	4,60	153,935	5,55	152,524	
286		153,469	6,00	153,442	4,60	-3	153,649		-3	153,580		-0,069		-3	4,60	153,442	6,00	151,976	
287		152,958	5,55	152,743	4,60	-3	153,124		-3	152,881		-0,243		-3	4,60	152,743	5,55	151,456	
288		151,670	6,20	151,837	4,60	-3	151,856		-3	151,975		0,119		-3	4,60	151,837	6,20	150,201	
289		150,736	6,00	150,726	4,60	-3	150,916		-3	150,864		-0,052		-3	4,60	150,726	6,00	149,270	
290		150,049	6,50	149,494	4,60	-3	150,244		-3	149,632		-0,612		-3	4,60	149,494	6,50	148,605	
291		149,620	6,50	149,059	4,60	-3	149,815		-3	149,197		-0,618		-3	4,60	149,059	6,50	148,180	
292		149,271	7,00	149,358	4,60	-3	149,481		-3	149,496		0,015		-3	4,60	149,358	7,00	147,850	
293		148,955	6,80	149,678	4,60	-3	149,159		-3	149,816		0,657		-3	4,60	149,678	6,80	147,531	
294		149,255	6,80	149,866	4,60	-3	149,459		-3	150,004		0,545		-3	4,60	149,866	6,80	147,828	
295		149,100	6,20	149,508	4,60	-3	149,286		-3	149,646		0,360		-3	4,60	149,508	6,20	147,657	
296		147,750	6,50	148,570	4,60	-3	147,945		-3	148,708		0,763		-3	4,60	148,570	6,50	146,329	
297		147,632	6,50	148,214	4,60	-3	147,827		-3	148,352		0,525		-3	4,60	148,214	6,50	146,212	
298		147,774	5,75	148,604	4,60	-3	147,946		-3	148,742		0,796		-3	4,60	148,604	5,75	146,330	
299		148,086	6,00	148,994	4,60	-3	148,266		-3	149,132		0,866		-3	4,60	148,994	6,00	146,647	
300		148,433	6,50	149,384	4,60	-3	148,628		-3	149,522		0,894		-3	4,60	149,384	6,50	147,005	
301		148,844	7,00	149,724	4,60	-3	149,054		-3	149,862		0,808		-3	4,60	149,724	7,00	147,427	
302		149,517	7,00	149,885	4,60	-3	149,727		-3	150,023		0,296		-3	4,60	149,885	7,00	148,093	
303		149,681	7,60	149,999	0,00	-3	149,909		-3	149,999		0,090		-3	4,60	149,861	7,60	148,273	
304		149,565	7,40	149,652	4,60	-3	149,787		-3	149,790		0,003		-3	4,60	149,652	7,40	148,153	
305		149,439	7,00	149,257	4,60	-3	149,649		-3	149,395		-0,254		-3	4,60	149,257	7,00	148,016	
306		149,112	6,50	148,727	4,60	-3	149,307		-3	148,865		-0,442		-3	4,60	148,727	6,50	147,677	
307		148,682	6,00	148,191	4,60	-3	148,862		-3	148,329		-0,533		-3	4,60	148,191	6,00	147,237	
308		147,837	6,00	147,655	4,60	-3	148,017		-3	147,793		-0,224		-3	4,60	147,655	6,00	146,400	
309		147,300	6,00	147,238	4,60	-3	147,480		-3	147,376		-0,104		-3	4,60	147,238	6,00	145,869	
310		147,162	6,00	147,060	4,60	-3	147,342		-3	147,198		-0,144		-3	4,60	147,060	6,00	145,732	
311		147,099	6,00	147,093	4,60	-3	147,279		-3	147,231		-0,048		-3	4,60	147,093	6,00	145,670	
312		147,051	6,00	147,157	4,60	-3	147,231		-3	147,295		0,064		-3	4,60	147,157	6,00	145,622	
313		147,012	6,00	147,221	4,60	-3	147,192		-3	147,359		0,167		-3	4,60	147,221	6,00	145,583	
314		146,952	6,00	147,285	4,60	-3	147,132		-3	147,423		0,291		-3	4,60	147,285	6,00	145,524	
315		146,856	6,00	147,348	4,60	-3	147,036		-3	147,486		0,450		-3	4,60	147,348	6,00	145,429	
316		146,607	7,00	147,086	4,60	-3	146,817		-3	147,224		0,407		-3	4,60	147,086	7,00	145,212	
317		146,317	7,00	146,734	4,60	-3	146,527		-3	146,872		0,345		-3	4,60	146,734	7,00	144,925	
318		145,976	6,80	146,382	4,60	-3	146,180		-3	146,520		0,340		-3	4,60	146,382	6,80	144,582	
319		145,633	6,20	146,030	4,60	-3	145,819		-3	146,168		0,349		-3	4,60	146,030	6,20	144,224	


  
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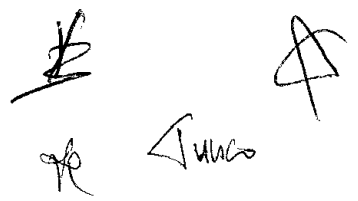
  
  




**NOTA DE SERVIÇO DE TERRAPLENAGEM**

ESTACA	LADO ESQUERDO						EIXO						LADO DIREITO								
	OFFSET			BORDO			COTA DO TERRENO			COTA DO PROJETO			DIFERENÇA VERMELHA			BORDO			OFFSET		
	COTA	DIST	%	COTA	DIST	%	TERRENO	PROJETO	%	VERMELHA	DIST	%	COTA	DIST	%	DIST	%	COTA	DIST	%	
176	145,319	6,00	-3	145,679	4,60	-3	145,499	145,817	0,318	3	4,60	145,679	6,00	143,907							
177	144,953	6,00	-3	145,327	4,60	-3	145,133	145,465	0,332	3	4,60	145,327	6,00	143,545							
178	144,472	6,00	-3	144,975	4,60	-3	144,652	145,113	0,461	3	4,60	144,975	6,00	143,069							
179	144,102	6,00	-3	144,623	4,60	-3	144,282	144,761	0,479	3	4,60	144,623	6,00	142,703							
180	143,794	7,00	-3	144,271	4,60	-3	144,004	144,409	0,405	3	4,60	144,271	7,00	142,427							
181	143,475	7,00	-3	143,920	4,60	-3	143,685	144,058	0,373	3	4,60	143,920	7,00	142,112							
182	143,255	6,80	-3	143,607	4,60	-3	143,459	143,745	0,286	3	4,60	143,607	6,80	141,888							
183	143,046	6,20	-3	143,349	4,60	-3	143,232	143,487	0,255	3	4,60	143,349	6,20	141,663							
184	142,789	7,20	-3	143,149	4,60	-3	143,005	143,287	0,282	3	4,60	143,149	7,20	141,438							
185	142,745	8,20	-3	143,004	4,60	-3	142,991	143,142	0,151	3	4,60	143,004	8,20	141,424							
186	142,734	9,20	-3	142,917	4,60	-3	143,010	143,055	0,045	3	4,60	142,917	9,20	141,443							
187	142,721	10,20	-3	142,885	4,60	-3	143,027	143,023	-0,004	3	4,60	142,885	10,20	141,460							
188	142,658	5,55	-3	142,911	4,60	-3	142,824	143,049	0,225	3	4,60	142,911	5,55	141,259							
189	142,468	5,20	-3	142,992	4,60	-3	142,624	143,130	0,506	3	4,60	142,992	5,20	141,061							
190	142,488	6,00	-3	143,130	4,60	-3	142,688	143,268	0,600	3	4,60	143,130	6,00	141,105							
191	142,715	6,80	-3	143,324	4,60	-3	142,919	143,462	0,543	3	4,60	143,324	6,80	141,353							
192	142,989	7,00	-3	143,537	4,60	-3	143,199	143,675	0,476	3	4,60	143,537	7,00	141,630							
193	143,284	6,50	-3	143,750	4,60	-3	143,479	143,888	0,409	3	4,60	143,750	6,50	141,908							
194	143,586	5,55	-3	143,963	4,60	-3	143,752	144,101	0,349	3	4,60	143,963	5,55	142,178							
195	143,840	5,55	-3	144,176	4,60	-3	144,006	144,314	0,308	3	4,60	144,176	5,55	142,429							
196	144,080	6,00	-3	144,389	4,60	-3	144,260	144,527	0,267	3	4,60	144,389	6,00	142,681							
197	144,390	5,55	-3	144,602	4,60	-3	144,556	144,740	0,184	3	4,60	144,602	5,55	142,974							
198	144,622	6,20	-3	144,815	4,60	-3	144,806	144,953	0,145	3	4,60	144,815	6,20	143,223							
199	144,717	6,00	-3	145,028	4,60	-3	144,897	145,166	0,269	3	4,60	145,028	6,00	143,311							
200	144,844	6,50	-3	145,241	4,60	-3	145,039	145,379	0,340	3	4,60	145,241	6,50	143,452							
201	145,045	6,50	-3	145,454	4,60	-3	145,240	145,592	0,352	3	4,60	145,454	6,50	143,651							
202	145,198	7,00	-3	145,667	4,60	-3	145,408	145,805	0,397	3	4,60	145,667	7,00	143,817							
203	145,363	6,80	-3	145,880	4,60	-3	145,567	146,018	0,451	3	4,60	145,880	6,80	143,975							
204	145,639	6,80	-3	146,093	4,60	-3	145,843	146,231	0,388	3	4,60	146,093	6,80	144,248							
205	146,012	6,20	-3	146,306	4,60	-3	146,198	146,444	0,246	3	4,60	146,306	6,20	144,599							
206	146,143	6,50	-3	146,519	4,60	-3	146,338	146,657	0,319	3	4,60	146,519	6,50	144,738							
207	146,227	6,50	-3	146,732	4,60	-3	146,422	146,870	0,448	3	4,60	146,732	6,50	144,821							
208	146,515	5,75	-3	146,938	4,60	-3	146,687	147,076	0,389	3	4,60	146,938	5,75	145,084							
209	146,665	6,00	-3	147,059	4,60	-3	146,845	147,197	0,352	3	4,60	147,059	6,00	145,240							
210	146,556	6,50	-3	147,073	4,60	-3	146,751	147,211	0,460	3	4,60	147,073	6,50	145,147							
211	146,048	7,00	-3	146,981	4,60	-3	146,258	147,119	0,861	3	4,60	146,981	7,00	144,659							
212	145,664	7,00	-3	146,783	4,60	-3	145,874	146,921	1,047	3	4,60	146,783	7,00	144,279							
213	145,349	7,60	-3	146,621	0,00	-3	145,577	146,621	1,044	3	4,60	146,621	7,60	143,985							
214	145,067	7,40	-3	146,141	4,60	-3	145,289	146,279	0,990	3	4,60	146,141	7,40	143,699							
215	144,791	7,00	-3	145,773	4,60	-3	145,001	145,911	0,910	3	4,60	145,773	7,00	143,474							

  
**Thiago Douglas da Costa**  
 Engenheiro Civil  
 CREA 211501802-8





**NOTA DE SERVIÇO DE TERRAPLENAGEM**


ESTACA	LADO ESQUERDO						EIXO						LADO DIREITO					
	OFFSET			BORDO			COTADO			COTADO			BORDO			OFFSET		
	COTA	DIST	%	COTA	DIST	%	TERRENO	PROJETO	DIFERENÇA VERMELHA	TERRENO	PROJETO	DIFERENÇA VERMELHA	DIST	COTA	DIST	COTA	DIST	COTA
216	360	144,383	6,50	145,378	4,60	-3	144,578	145,516	0,938	-3	144,578	145,516	0,938	-3	4,60	145,378	6,50	142,996
217	361	143,871	6,00	144,956	4,60	-3	144,051	145,094	1,043	-3	144,051	145,094	1,043	-3	4,60	144,956	6,00	142,474
218	362	143,277	6,00	144,507	4,60	-3	143,457	144,645	1,188	-3	143,457	144,645	1,188	-3	4,60	144,507	6,00	141,886
219	363	142,707	6,00	144,032	4,60	-3	142,887	144,170	1,283	-3	142,887	144,170	1,283	-3	4,60	144,032	6,00	141,322
220	364	142,297	6,00	143,531	4,60	-3	142,477	143,669	1,192	-3	142,477	143,669	1,192	-3	4,60	143,531	6,00	140,916
221	365	141,940	6,00	143,002	4,60	-3	142,120	143,140	1,020	-3	142,120	143,140	1,020	-3	4,60	143,002	6,00	140,562
222	366	141,662	6,00	142,448	4,60	-3	141,842	142,586	0,744	-3	141,842	142,586	0,744	-3	4,60	142,448	6,00	140,287
223	367	141,410	6,00	141,868	4,60	-3	141,590	142,006	0,416	-3	141,590	142,006	0,416	-3	4,60	141,868	6,00	140,037
224	368	140,717	6,00	141,283	4,60	-3	140,897	141,421	0,524	-3	140,897	141,421	0,524	-3	4,60	141,283	6,00	139,351
225	369	139,755	6,00	140,698	4,60	-3	139,935	140,836	0,901	-3	139,935	140,836	0,901	-3	4,60	140,698	6,00	138,399
226	370	138,205	7,00	139,143	4,60	-3	138,415	139,281	0,866	-3	138,415	139,281	0,866	-3	4,60	139,143	7,00	136,894
227	371	136,351	7,00	137,024	4,60	-3	136,561	137,162	0,601	-3	136,561	137,162	0,601	-3	4,60	137,024	7,00	135,059
228	372	134,145	6,80	135,148	4,60	-3	134,349	135,286	0,937	-3	134,349	135,286	0,937	-3	4,60	135,148	6,80	132,869
229	373	133,314	6,20	133,896	4,60	-3	133,500	134,034	0,534	-3	133,500	134,034	0,534	-3	4,60	133,896	6,20	132,028
230	374	132,951	6,00	133,272	4,60	-3	133,131	133,410	0,279	-3	133,131	133,410	0,279	-3	4,60	133,272	6,00	131,663
231	375	133,128	6,00	133,277	4,60	-3	133,308	133,415	0,107	-3	133,308	133,415	0,107	-3	4,60	133,277	6,00	131,838
232	376	133,790	6,00	133,910	4,60	-3	133,970	134,048	0,078	-3	133,970	134,048	0,078	-3	4,60	133,910	6,00	132,494
233	377	134,860	6,00	135,171	4,60	-3	135,040	135,309	0,269	-3	135,040	135,309	0,269	-3	4,60	135,171	6,00	133,553
234	378	136,313	7,00	136,817	4,60	-3	136,523	136,955	0,432	-3	136,523	136,955	0,432	-3	4,60	136,817	7,00	135,021
235	379	137,880	7,00	138,468	4,60	-3	138,090	138,606	0,516	-3	138,090	138,606	0,516	-3	4,60	138,468	7,00	136,572
236	380	139,508	6,80	140,119	4,60	-3	139,712	140,257	0,545	-3	139,712	140,257	0,545	-3	4,60	140,119	6,80	138,178
237	381	141,178	6,20	141,770	4,60	-3	141,364	141,908	0,544	-3	141,364	141,908	0,544	-3	4,60	141,770	6,20	139,814
238	382	142,647	7,20	142,899	4,60	-3	142,863	143,037	0,174	-3	142,863	143,037	0,174	-3	4,60	142,899	7,20	141,298
239	383	143,063	8,20	143,981	4,60	-3	143,309	144,119	0,810	-3	143,309	144,119	0,810	-3	4,60	143,981	8,20	141,739
240	384	143,778	9,20	145,064	4,60	-3	144,054	145,202	1,148	-3	144,054	145,202	1,148	-3	4,60	145,064	9,20	142,477
241	385	145,139	10,20	146,146	4,60	-3	145,445	146,284	0,839	-3	145,445	146,284	0,839	-3	4,60	146,146	10,20	143,854
242	386	147,033	5,55	147,228	4,60	-3	147,199	147,366	0,167	-3	147,199	147,366	0,167	-3	4,60	147,228	5,55	145,590
243	387	147,801	5,20	148,310	4,60	-3	147,957	148,448	0,491	-3	147,957	148,448	0,491	-3	4,60	148,310	5,20	146,341
244	388	148,939	6,00	149,393	4,60	-3	149,119	149,531	0,412	-3	149,119	149,531	0,412	-3	4,60	149,393	6,00	147,491
245	389	149,951	6,80	150,474	4,60	-3	150,155	150,612	0,457	-3	150,155	150,612	0,457	-3	4,60	150,474	6,80	148,517
246	390	150,518	7,00	151,290	4,60	-3	150,728	151,428	0,700	-3	150,728	151,428	0,700	-3	4,60	151,290	7,00	149,084
247	391	150,846	6,50	151,622	4,60	-3	151,041	151,760	0,719	-3	151,041	151,760	0,719	-3	4,60	151,622	6,50	149,394
248	392	150,874	5,55	151,470	4,60	-3	151,040	151,608	0,568	-3	151,040	151,608	0,568	-3	4,60	151,470	5,55	149,393
249	393	150,674	5,55	151,101	4,60	-3	150,840	151,239	0,399	-3	150,840	151,239	0,399	-3	4,60	151,101	5,55	149,195
250	394	150,340	6,00	150,732	4,60	-3	150,520	150,870	0,350	-3	150,520	150,870	0,350	-3	4,60	150,732	6,00	148,875
251	395	150,116	5,55	150,363	4,60	-3	150,282	150,501	0,219	-3	150,282	150,501	0,219	-3	4,60	150,363	5,55	148,643
252	396	149,820	6,20	149,994	4,60	-3	150,006	150,132	0,126	-3	150,006	150,132	0,126	-3	4,60	149,994	6,20	148,369
253	397	149,877	6,00	149,766	4,60	-3	150,057	149,904	-0,153	-3	150,057	149,904	-0,153	-3	4,60	149,766	6,00	148,420
254	398	150,018	6,50	149,833	4,60	-3	150,213	149,971	-0,242	-3	150,213	149,971	-0,242	-3	4,60	149,833	6,50	148,574
255	399	150,390	6,50	150,196	4,60	-3	150,585	150,334	-0,251	-3	150,585	150,334	-0,251	-3	4,60	150,196	6,50	148,943


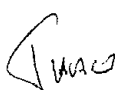

Thiago Douglas da Costa  
 Engenheiro CMA  
 CREA 211501802-8



**NOTA DE SERVIÇO DE TERRAPLENAGEM**

ESTACA	LADO ESQUERDO				EIXO				LADO DIREITO				
	COTA	OFFSET	BORDO	%	COTA DO TERRENO	COTA DO PROJETO	DIFERENÇA VERMELHA	%	BORDO	OFFSET	COTA	DIST	OFFSET
256	150,891	7,00	150,855	4,60	-3	151,101	150,993	-0,108	-3	4,60	150,855	7,00	149,453
257	151,493	6,80	151,811	4,60	-3	151,697	151,949	0,252	-3	4,60	151,811	6,80	150,043
258	152,519	6,80	152,921	4,60	-3	152,723	153,059	0,336	-3	4,60	152,921	6,80	151,959
259	153,624	6,20	154,032	4,60	-3	153,810	154,170	0,360	-3	4,60	154,032	6,20	152,135
260	154,717	6,50	155,142	4,60	-3	154,912	155,280	0,368	-3	4,60	155,142	6,50	153,228
261	155,832	6,50	156,253	4,60	-3	156,027	156,391	0,364	-3	4,60	156,253	6,50	154,330
262	156,902	5,75	157,363	4,60	-3	157,074	157,501	0,427	-3	4,60	157,363	5,75	155,367
263	157,945	6,00	158,474	4,60	-3	158,125	158,612	0,487	-3	4,60	158,474	6,00	156,407
264	159,168	6,50	159,584	4,60	-3	159,363	159,722	0,359	-3	4,60	159,584	6,50	157,633
265	159,594	7,00	160,438	4,60	-3	159,804	160,576	0,772	-3	4,60	160,438	7,00	158,069
266	159,825	7,00	160,821	4,60	-3	160,035	160,959	0,924	-3	4,60	160,821	7,00	158,298
267	159,772	7,60	160,871	0,00	-3	160,000	160,871	0,871	-3	4,60	160,733	7,60	158,263
268	159,182	7,40	160,174	4,60	-3	159,404	160,312	0,908	-3	4,60	160,174	7,40	157,673
269	158,521	7,00	159,145	4,60	-3	158,731	159,283	0,552	-3	4,60	159,145	7,00	157,007
270	157,542	6,50	157,999	4,60	-3	157,737	158,037	0,300	-3	4,60	157,999	6,50	156,023
271	156,424	6,00	156,654	4,60	-3	156,604	156,792	0,188	-3	4,60	156,654	6,00	154,901
272	155,316	6,00	155,409	4,60	-3	155,496	155,547	0,051	-3	4,60	155,409	6,00	153,804
273	153,967	6,00	154,164	4,60	-3	154,147	154,302	0,155	-3	4,60	154,164	6,00	152,469
0	153,280	6,00	154,112	4,60	-3	153,460	154,250	0,790	-3	4,60	154,112	6,00	151,789
1	153,354	6,00	154,112	4,60	-3	153,534	154,250	0,716	-3	4,60	154,112	6,00	151,862
2	153,218	6,00	154,112	4,60	-3	153,398	154,250	0,852	-3	4,60	154,112	6,00	151,727
3	152,782	6,00	154,100	4,60	-3	152,962	154,238	1,276	-3	4,60	154,100	6,00	151,296
4	152,119	6,00	153,527	4,60	-3	152,299	153,665	1,366	-3	4,60	153,527	6,00	150,639
5	151,428	6,00	152,099	4,60	-3	151,608	152,237	0,629	-3	4,60	152,099	6,00	149,955
6	150,610	7,00	150,367	4,60	-3	150,820	150,505	-0,315	-3	4,60	150,367	7,00	149,175
7	149,665	7,00	150,251	4,60	-3	149,875	150,389	0,514	-3	4,60	150,251	7,00	148,240
8	150,045	6,80	150,816	4,60	-3	150,249	150,954	0,705	-3	4,60	150,816	6,80	148,610
9	150,652	6,20	151,358	4,60	-3	150,838	151,496	0,658	-3	4,60	151,358	6,20	149,193
10	150,637	6,00	151,569	4,60	-3	150,817	151,707	0,890	-3	4,60	151,569	6,00	149,172
11	150,492	6,00	151,353	4,60	-3	150,672	151,491	0,819	-3	4,60	151,353	6,00	149,029
12	150,102	6,00	150,712	4,60	-3	150,282	150,850	0,568	-3	4,60	150,712	6,00	148,643
13	149,298	6,00	149,891	4,60	-3	149,478	150,029	0,551	-3	4,60	149,891	6,00	147,847
14	148,498	7,00	149,071	4,60	-3	148,708	149,209	0,501	-3	4,60	149,071	7,00	147,084
15	147,866	7,00	148,294	4,60	-3	148,076	148,392	0,316	-3	4,60	148,294	7,00	146,459
16	147,481	6,80	147,524	4,60	-3	147,685	147,662	-0,023	-3	4,60	147,524	6,80	146,072
17	147,048	6,20	146,918	4,60	-3	147,234	147,056	-0,178	-3	4,60	146,918	6,20	145,625
18	146,714	7,20	146,435	4,60	-3	146,930	146,573	-0,357	-3	4,60	146,435	7,20	145,324
19	146,474	8,20	146,075	4,60	-3	146,720	146,213	-0,507	-3	4,60	146,075	8,20	145,116
20	146,096	9,20	145,839	4,60	-3	146,372	145,977	-0,395	-3	4,60	145,839	9,20	144,740
21	145,913	10,20	145,726	4,60	-3	146,219	145,864	-0,355	-3	4,60	145,726	10,20	144,620




  
**Thiago Douglas da Costa**  
 Engenheiro Civil  
 CREA 211501802-8



**NOTA DE SERVIÇO DE TERRAPLENAGEM**

ESTACA	LADO ESQUERDO				EIXO				LADO DIREITO				
	COTA	OFFSET	BORDO	COTA DO TERRENO	COTADO PROJETO	DIFERENÇA VERMELHA	%	BORDO	COTA	OFFSET	BORDO	COTA	OFFSET
22	145,924	5,55	4,60	146,090	145,874	-0,216	-3	4,60	145,736	5,55	4,60	145,736	5,55
23	145,790	5,20	4,60	145,946	146,007	0,061	-3	4,60	145,869	5,20	4,60	145,869	5,20
24	145,782	6,00	4,60	145,962	146,263	0,301	-3	4,60	146,125	6,00	4,60	146,125	6,00
25	146,072	6,80	4,60	146,276	146,643	0,367	-3	4,60	146,505	6,80	4,60	146,505	6,80
26	146,526	7,00	4,60	146,736	147,146	0,410	-3	4,60	147,008	7,00	4,60	147,008	7,00
27	147,034	6,50	4,60	147,229	147,772	0,543	-3	4,60	147,634	6,50	4,60	147,634	6,50
28	147,734	5,55	4,60	147,900	148,488	0,588	-3	4,60	148,350	5,55	4,60	148,350	5,55
29	148,313	5,55	4,60	148,479	149,208	0,729	-3	4,60	149,070	5,55	4,60	149,070	5,55
30	148,690	6,00	4,60	148,870	149,674	0,804	-3	4,60	149,536	6,00	4,60	149,536	6,00
31	148,757	5,55	4,60	148,923	149,561	0,638	-3	4,60	149,423	5,55	4,60	149,423	5,55
32	148,256	6,20	4,60	148,442	149,005	0,563	-3	4,60	148,867	6,20	4,60	148,867	6,20
33	147,766	6,00	4,60	147,946	148,420	0,474	-3	4,60	148,282	6,00	4,60	148,282	6,00
34	147,237	6,50	4,60	147,432	147,835	0,403	-3	4,60	147,697	6,50	4,60	147,697	6,50
35	146,646	6,50	4,60	146,841	147,250	0,409	-3	4,60	147,112	6,50	4,60	147,112	6,50
36	146,030	7,00	4,60	146,240	146,665	0,425	-3	4,60	146,527	7,00	4,60	146,527	7,00
37	145,420	6,80	4,60	145,624	146,080	0,456	-3	4,60	145,942	6,80	4,60	145,942	6,80
38	144,661	6,80	4,60	144,865	145,495	0,630	-3	4,60	145,357	6,80	4,60	145,357	6,80
39	144,116	6,20	4,60	144,302	144,910	0,608	-3	4,60	144,772	6,20	4,60	144,772	6,20
40	143,902	6,50	4,60	144,097	144,641	0,544	-3	4,60	144,503	6,50	4,60	144,503	6,50
41	144,125	6,50	4,60	144,320	144,834	0,514	-3	4,60	144,696	6,50	4,60	144,696	6,50
42	144,352	5,75	4,60	144,524	145,026	0,502	-3	4,60	144,888	5,75	4,60	144,888	5,75
43	144,375	6,00	4,60	144,555	145,171	0,616	-3	4,60	145,033	6,00	4,60	145,033	6,00
44	144,184	6,50	4,60	144,379	144,946	0,567	-3	4,60	144,808	6,50	4,60	144,808	6,50
45	143,871	7,00	4,60	144,081	144,720	0,639	-3	4,60	144,582	7,00	4,60	144,582	7,00
46	143,651	7,00	4,60	143,861	144,494	0,633	-3	4,60	144,356	7,00	4,60	144,356	7,00
47	143,436	7,60	0,00	143,664	144,269	0,605	-3	4,60	144,131	7,60	4,60	144,131	7,60
48	143,256	7,40	4,60	143,478	144,043	0,565	-3	4,60	143,905	7,40	4,60	143,905	7,40
49	143,057	7,00	4,60	143,267	143,814	0,547	-3	4,60	143,676	7,00	4,60	143,676	7,00
50	142,596	6,50	4,60	142,791	143,332	0,541	-3	4,60	143,194	6,50	4,60	143,194	6,50
51	142,137	6,00	4,60	142,317	142,850	0,533	-3	4,60	142,712	6,00	4,60	142,712	6,00
52	141,709	6,00	4,60	141,889	142,367	0,478	-3	4,60	142,229	6,00	4,60	142,229	6,00
53	141,162	6,00	4,60	141,342	141,885	0,543	-3	4,60	141,747	6,00	4,60	141,747	6,00
54	140,655	6,00	4,60	140,835	141,403	0,568	-3	4,60	141,265	6,00	4,60	141,265	6,00
55	140,195	6,00	4,60	140,375	140,921	0,546	-3	4,60	140,783	6,00	4,60	140,783	6,00
56	140,053	6,00	4,60	140,233	140,958	0,725	-3	4,60	140,820	6,00	4,60	140,820	6,00
57	140,459	6,00	4,60	140,639	141,167	0,528	-3	4,60	141,029	6,00	4,60	141,029	6,00
58	140,367	6,00	4,60	140,547	141,121	0,574	-3	4,60	140,983	6,00	4,60	140,983	6,00
59	140,392	6,00	4,60	140,572	141,071	0,499	-3	4,60	140,933	6,00	4,60	140,933	6,00
60	140,326	7,00	4,60	140,536	141,021	0,485	-3	4,60	140,883	7,00	4,60	140,883	7,00
61	139,799	7,00	4,60	140,009	140,927	0,918	-3	4,60	140,789	7,00	4,60	140,789	7,00




  
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**NOTA DE SERVIÇO DE TERRAPLENAGEM**

ESTACA	LADO ESQUERDO				EIXO				LADO DIREITO				
	COTA	OFFSET	BORDO	%	COTADO	PROJETO	DIFERENÇA	BORDO	OFFSET	COTA	DIST	COTA	OFFSET
62	138,884	6,80	4,60	-3	139,088	140,461	1,373	4,60	6,80	140,323	6,80	137,561	
63	137,807	6,20	4,60	-3	137,993	139,557	1,564	4,60	6,20	139,419	6,20	136,476	
64	136,549	6,00	4,60	-3	136,729	138,215	1,486	4,60	6,00	138,077	6,00	135,225	
65	135,159	6,00	4,60	-3	135,339	136,436	1,097	4,60	6,00	136,298	6,00	133,849	
66	133,370	6,00	4,60	-3	133,550	134,262	0,712	4,60	6,00	134,124	6,00	132,078	
67	131,340	6,00	4,60	-3	131,520	132,023	0,503	4,60	6,00	131,885	6,00	130,068	
68	129,131	7,00	4,60	-3	129,341	129,783	0,442	4,60	7,00	129,645	7,00	127,911	
69	128,274	7,00	4,60	-3	128,484	128,687	0,203	4,60	7,00	128,549	7,00	127,063	
86	128,863	6,80	4,60	-3	129,067	129,123	0,056	4,60	6,80	128,985	6,80	127,640	
87	129,835	6,20	4,60	-3	130,021	130,279	0,258	4,60	6,20	130,141	6,20	128,584	
88	130,781	7,20	4,60	-3	130,997	131,434	0,437	4,60	7,20	131,296	7,20	129,550	
89	131,811	8,20	4,60	-3	132,057	132,590	0,533	4,60	8,20	132,452	8,20	130,600	
90	133,319	9,20	4,60	-3	133,595	134,152	0,557	4,60	9,20	134,014	9,20	132,122	
91	135,433	10,20	4,60	-3	135,739	136,189	0,450	4,60	10,20	136,051	10,20	134,245	
92	137,759	5,55	4,60	-3	137,925	138,226	0,301	4,60	5,55	138,088	5,55	136,409	
93	139,978	5,20	4,60	-3	140,134	140,263	0,129	4,60	5,20	140,125	5,20	138,596	
94	142,201	6,00	4,60	-3	142,381	142,300	-0,081	4,60	6,00	142,162	6,00	140,821	
95	144,145	6,80	4,60	-3	144,349	144,254	-0,095	4,60	6,80	144,116	6,80	142,769	
96	145,828	7,00	4,60	-3	146,038	145,889	-0,149	4,60	7,00	145,751	7,00	144,441	
97	147,045	6,50	4,60	-3	147,240	147,192	-0,048	4,60	6,50	147,054	6,50	145,631	
98	147,739	5,55	4,60	-3	147,905	148,161	0,256	4,60	5,55	148,023	5,55	146,289	
99	148,157	5,55	4,60	-3	148,323	148,798	0,475	4,60	5,55	148,660	5,55	146,703	
100	148,557	6,00	4,60	-3	148,737	149,109	0,372	4,60	6,00	148,971	6,00	147,113	
101	148,994	5,55	4,60	-3	149,160	149,315	0,155	4,60	5,55	149,177	5,55	147,532	
102	149,111	6,20	4,60	-3	149,297	149,521	0,224	4,60	6,20	149,383	6,20	147,667	
103	148,959	6,00	4,60	-3	149,139	149,655	0,516	4,60	6,00	149,517	6,00	147,511	
104	148,511	6,50	4,60	-3	148,706	149,053	0,347	4,60	6,50	148,915	6,50	147,082	
105	148,111	6,50	4,60	-3	148,306	148,503	0,197	4,60	6,50	148,365	6,50	146,686	
106	147,983	7,00	4,60	-3	148,193	148,293	0,100	4,60	7,00	148,155	7,00	146,574	
107	147,947	6,80	4,60	-3	148,151	148,466	0,315	4,60	6,80	148,328	6,80	146,533	
108	148,208	6,80	4,60	-3	148,412	148,970	0,558	4,60	6,80	148,832	6,80	146,791	
109	148,774	6,20	4,60	-3	148,960	149,518	0,558	4,60	6,20	149,380	6,20	147,334	
110	149,347	6,50	4,60	-3	149,542	150,066	0,524	4,60	6,50	149,928	6,50	147,910	
111	149,906	6,50	4,60	-3	150,101	150,614	0,513	4,60	6,50	150,476	6,50	148,463	
112	150,481	5,75	4,60	-3	150,653	151,162	0,509	4,60	5,75	151,024	5,75	149,010	
113	150,932	6,00	4,60	-3	151,112	151,710	0,598	4,60	6,00	151,572	6,00	149,464	
114	151,426	6,50	4,60	-3	151,621	152,374	0,753	4,60	6,50	152,236	6,50	149,968	
115	152,298	7,00	4,60	-3	152,508	153,122	0,614	4,60	7,00	152,984	7,00	150,846	
116	153,364	7,00	4,60	-3	153,574	153,870	0,296	4,60	7,00	153,732	7,00	151,902	
117	153,481	7,60	0,00	-3	153,709	154,617	0,908	4,60	7,60	154,479	7,60	152,035	




  
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**NOTA DE SERVIÇO DE TERRAPLENAGEM**

ESTACA	LADO ESQUERDO				EIXO				LADO DIREITO				
	COTA	OFFSET	BORDO	%	COTADO	DIFERENÇA	COTADO	%	BORDO	DIST	OFFSET	COTA	
118	153,681	7,40	155,014	4,60	-3	153,903	155,152	1,249	-3	4,60	155,014	7,40	152,227
119	154,042	7,00	155,180	4,60	-3	154,252	155,318	1,066	-3	4,60	155,180	7,00	152,573
120	154,340	6,50	154,977	4,60	-3	154,535	155,115	0,580	-3	4,60	154,977	6,50	152,853
121	154,037	6,00	154,406	4,60	-3	154,217	154,544	0,327	-3	4,60	154,406	6,00	152,538
122	153,060	6,00	153,467	4,60	-3	153,240	153,605	0,365	-3	4,60	153,467	6,00	151,571
123	151,806	6,00	152,370	4,60	-3	151,986	152,508	0,522	-3	4,60	152,370	6,00	150,330
124	150,616	6,00	151,274	4,60	-3	150,796	151,412	0,616	-3	4,60	151,274	6,00	149,151
125	149,485	6,00	150,211	4,60	-3	149,665	150,349	0,684	-3	4,60	150,211	6,00	148,032
126	148,430	6,00	149,353	4,60	-3	148,610	149,491	0,881	-3	4,60	149,353	6,00	146,987
127	148,000	6,00	148,723	4,60	-3	148,180	148,861	0,681	-3	4,60	148,723	6,00	146,562
128	148,059	6,00	148,322	4,60	-3	148,239	148,460	0,221	-3	4,60	148,322	6,00	146,920
129	147,918	6,00	148,140	4,60	-3	148,098	148,278	0,180	-3	4,60	148,140	6,00	146,480
130	147,696	7,00	148,015	4,60	-3	147,906	148,153	0,247	-3	4,60	148,015	7,00	146,290
131	147,468	7,00	147,889	4,60	-3	147,678	148,027	0,349	-3	4,60	147,889	7,00	146,065
132	147,197	6,80	147,764	4,60	-3	147,401	147,902	0,501	-3	4,60	147,764	6,80	145,790
133	146,836	6,20	147,639	4,60	-3	147,022	147,777	0,755	-3	4,60	147,639	6,20	145,415
134	146,723	6,00	147,514	4,60	-3	146,903	147,652	0,749	-3	4,60	147,514	6,00	145,297
135	146,736	6,00	147,389	4,60	-3	146,916	147,527	0,611	-3	4,60	147,389	6,00	145,310
136	146,744	6,00	147,264	4,60	-3	146,924	147,402	0,478	-3	4,60	147,264	6,00	145,318
137	146,619	6,00	147,139	4,60	-3	146,799	147,277	0,478	-3	4,60	147,139	6,00	145,194
138	146,441	7,00	147,014	4,60	-3	146,651	147,152	0,501	-3	4,60	147,014	7,00	145,048
139	146,742	7,00	147,481	4,60	-3	146,952	147,619	0,667	-3	4,60	147,481	7,00	145,346
140	147,419	6,80	147,963	4,60	-3	147,623	148,101	0,478	-3	4,60	147,963	6,80	146,010
141	147,581	6,20	148,155	4,60	-3	147,767	148,293	0,526	-3	4,60	148,155	6,20	146,153
142	147,483	7,20	148,026	4,60	-3	147,699	148,164	0,465	-3	4,60	148,026	7,20	146,085
143	146,980	8,20	147,576	4,60	-3	147,226	147,714	0,488	-3	4,60	147,576	8,20	145,617
144	146,381	9,20	146,987	4,60	-3	146,657	147,125	0,468	-3	4,60	146,987	9,20	145,054
145	145,781	10,20	146,398	4,60	-3	146,087	146,536	0,449	-3	4,60	146,398	10,20	144,490
146	145,567	5,55	145,809	4,60	-3	145,733	145,947	0,214	-3	4,60	145,809	5,55	144,139
147	145,177	5,20	145,220	4,60	-3	145,333	145,358	0,025	-3	4,60	145,220	5,20	143,743
148	144,220	6,00	144,631	4,60	-3	144,400	144,769	0,369	-3	4,60	144,631	6,00	142,819
149	143,623	6,80	144,042	4,60	-3	143,827	144,180	0,353	-3	4,60	144,042	6,80	142,252
150	143,083	7,00	143,453	4,60	-3	143,293	143,591	0,298	-3	4,60	143,453	7,00	141,723
151	142,564	6,50	142,864	4,60	-3	142,759	143,002	0,243	-3	4,60	142,864	6,50	141,195
152	141,955	5,55	142,275	4,60	-3	142,121	142,413	0,292	-3	4,60	142,275	5,55	140,563
153	141,602	5,55	141,686	4,60	-3	141,768	141,824	0,056	-3	4,60	141,686	5,55	140,214
154	140,939	6,00	141,097	4,60	-3	141,119	141,235	0,116	-3	4,60	141,097	6,00	139,571
154+7,99	140,519	5,55	140,547	4,60	-3	140,685	140,685	0,000	-3	4,60	140,547	5,55	139,142

  
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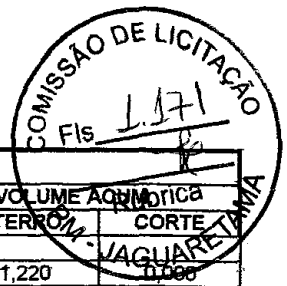


5 - CÁLCULO DOS VOLUMES DOS MATERIAIS

  
Thiago Douglas da Costa  
Engenheiro Civil  
CREA 211501802-8

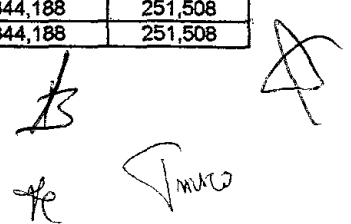
 





**CALCULO DE VOLUMES**

ESTACA	AREA		AREA ACUM.		SEMI DIST.	VOLUME		VOLUME AGRIMONICA	
	ATERRO	CORTE	ATERRO	CORTE		ATERRO	CORTE	ATERRO	CORTE
0	0,000								
1	1,122		1,122		10,00	11,220	0,000	11,220	0,000
2	0,000		1,122		10,00	11,220	0,000	22,440	0,000
3	15,225		15,225		10,00	152,250	0,000	174,690	0,000
4		1,321		1,321	10,00		13,210	174,690	13,210
5		1,010		2,331	10,00		23,310	174,690	36,520
6		1,322		2,332	10,00		23,322	174,690	59,842
7		0,895		2,217	10,00		22,172	174,690	82,014
8		0,788		1,683	10,00		16,830	174,690	98,844
9		0,000		0,788	10,00		7,880	174,690	106,724
10	2,268		2,268		10,00	22,681		197,371	106,724
11	2,287		4,556		10,00	45,555		242,927	106,724
12	2,347		4,635		10,00	46,347		289,274	106,724
13	2,357		4,705		10,00	47,045		336,319	106,724
14	2,568		4,925		10,00	49,253		385,572	106,724
15	1,838		4,406		10,00	44,060		429,632	106,724
16	0,125		1,963		10,00	19,633		449,265	106,724
17	0,113		0,238		10,00	2,379		451,644	106,724
18	0,102		0,214		10,00	2,144		453,788	106,724
19	0,102		0,204		10,00	2,040		455,828	106,724
20	0,125		0,227		10,00	2,270		458,098	106,724
21	0,494		0,819		10,00	6,189		464,287	106,724
22	0,473		0,967		10,00	9,671		473,958	106,724
23	0,574		1,047		10,00	10,473		484,431	106,724
24	0,231		0,806		10,00	8,056		492,487	106,724
25		0,352	0,231	0,352	10,00	2,314	3,522	494,801	110,246
26		0,916		1,269	10,00	0,000	12,685	494,801	122,931
27	0,000			0,916	10,00	0,000	9,163	494,801	132,094
28	0,934		0,934		10,00	9,340		504,141	132,094
29	1,406		2,340		10,00	23,403		527,544	132,094
30	1,555		2,961		10,00	29,608		557,152	132,094
31	1,662		3,217		10,00	32,165		589,317	132,094
32	1,306		2,968		10,00	29,680		618,997	132,094
33	0,473		1,779		10,00	17,790		636,787	132,094
34		2,394	0,473	2,394	10,00	4,730	23,940	641,517	156,034
35		0,935		3,329	10,00	0,000	33,290	641,517	189,324
36	0,965		0,965	0,935	10,00	9,650	9,350	651,167	198,674
37	0,897		1,862		10,00	18,620		669,787	198,674
38	1,031		1,928		10,00	19,280		689,067	198,674
39	1,134		2,165		10,00	21,650		710,717	198,674
40	0,768		1,902		10,00	19,023		729,740	198,674
41	0,238		1,006		10,00	10,063		739,803	198,674
42	0,237		0,475		10,00	4,750		744,553	198,674
43	0,257		0,494		10,00	4,940		749,493	198,674
44	0,347		0,604		10,00	6,040		755,533	198,674
45	0,144		0,491		10,00	4,910		760,443	198,674
46	0,188		0,332		10,00	3,320		763,763	198,674
47	0,196		0,384		10,00	3,840		767,603	198,674
48	0,195		0,391		10,00	3,910		771,513	198,674
49	0,210		0,405		10,00	4,050		775,563	198,674
50	0,912		1,122		10,00	11,220		786,783	198,674
51	0,166		1,078		10,00	10,781		797,564	198,674
52	0,264		0,431		10,00	4,305		801,869	198,674
53	0,328		0,593		10,00	5,926		807,795	198,674
54	0,278		0,606		10,00	6,062		813,857	198,674
55	0,453		0,731		10,00	7,309		821,166	198,674
56	0,375		0,828		10,00	8,280		829,446	198,674
57	0,393		0,768		10,00	7,676		837,122	198,674
58	0,157		0,550		10,00	5,495		842,618	198,674
59		0,547	0,157	0,547	10,00	1,570	5,472	844,188	204,146
60		0,328		0,875	10,00		8,753	844,188	212,899
61		0,556		0,884	10,00		8,841	844,188	221,740
62		0,430		0,986	10,00		9,860	844,188	231,600
63		0,456		0,886	10,00		8,864	844,188	240,464
64		0,324		0,780	10,00		7,804	844,188	248,268
65	0,000			0,324	10,00		3,240	844,188	251,508
66	0,000				10,00			844,188	251,508






**CALCULO DE VOLUMES**

ESTACA	AREA		AREA ACUM.		SEMI DIST.	VOLUME		VOLUME ACUM.	
	ATERRO	CORTE	ATERRO	CORTE		ATERRO	CORTE	ATERRO	CORTE
67	0,962		0,962		10,00	9,617		853,805	251,508
68	1,240		2,202		10,00	22,017		875,822	252,748
69		0,498	1,240	0,498	10,00	12,400	4,975	888,222	256,483
70	4,444		4,444	0,498	10,00	44,440	4,975	932,662	261,458
71	7,891		12,335		10,00	123,350		1.056,012	261,458
72	6,359		14,250		10,00	142,500		1.198,512	261,458
73	6,631		12,990		10,00	129,900		1.328,412	261,458
74	3,531		10,162		10,00	101,620		1.430,032	261,458
75	3,543		7,074		10,00	70,738		1.500,770	261,458
76	2,895		6,438		10,00	64,378		1.565,148	261,458
77		0,785	2,895	0,785	10,00	28,950	7,850	1.594,098	269,308
78		0,282		1,067	10,00		10,668	1.594,098	279,976
79	1,116		1,116	0,282	10,00	11,160	2,818	1.605,258	282,794
80	1,514		2,630		10,00	26,300		1.631,558	282,794
81	1,417		2,931		10,00	29,311		1.660,869	282,794
82	1,509		2,926		10,00	29,261		1.690,130	282,794
83	1,303		2,812		10,00	28,120		1.718,250	282,794
84	1,110		2,413		10,00	24,130		1.742,380	282,794
85	0,810		1,920		10,00	19,200		1.761,580	282,794
86	0,000		0,810		10,00	8,100		1.769,680	282,794
87	0,000		0,000		10,00	0,000		1.769,680	282,794
88	0,000		0,000		10,00	0,000		1.769,680	282,794
89	0,000		0,000		10,00	0,000		1.769,680	282,794
90	0,000		0,000		10,00	0,000		1.769,680	282,794
91	0,000		0,000		10,00	0,000		1.769,680	282,794
92	0,000		0,000		10,00	0,000		1.769,680	282,794
93		0,935		0,935	10,00		9,350	1.769,680	292,144
94	0,869		0,869	0,935	10,00	8,688	9,350	1.778,368	301,494
95		3,404	0,869	3,404	10,00	8,688	34,040	1.787,056	335,534
96	1,244		1,244	3,404	10,00	12,444	34,040	1.799,500	369,574
97	1,965		3,209		10,00	32,094		1.831,594	369,574
98	1,340		3,305		10,00	33,050		1.864,644	369,574
99	0,240		1,580		10,00	15,800		1.880,444	369,574
100	0,240		0,480		10,00	4,800		1.885,244	369,574
101	0,280		0,520		10,00	5,200		1.890,444	369,574
102	0,280		0,560		10,00	5,600		1.896,044	369,574
103	0,286		0,566		10,00	5,662		1.901,706	369,574
104		2,394	0,286	2,394	10,00	2,862	23,940	1.904,568	393,514
105		1,844	0,000	4,238	10,00		42,380	1.904,568	435,894
106		1,838	0,000	3,682	10,00		36,816	1.904,568	472,710
107		1,493	0,000	3,331	10,00		33,306	1.904,568	506,016
108	1,440		1,440	1,493	10,00	14,400	14,930	1.918,968	520,946
109	2,720		4,160	0,000	10,00	41,600		1.960,568	520,946
110	4,443		7,163	0,000	10,00	71,634		2.032,202	520,946
111	2,374		6,817	0,000	10,00	68,174		2.100,376	520,946
112	1,520		3,894	0,000	10,00	38,940		2.139,316	520,946
113	0,161		1,681	0,000	10,00	16,810		2.156,126	520,946
114	0,121		0,282	0,000	10,00	2,820		2.158,946	520,946
115	0,121		0,242	0,000	10,00	2,420		2.161,366	520,946
116	0,111		0,232	0,000	10,00	2,320		2.163,686	520,946
117	0,101		0,212	0,000	10,00	2,120		2.165,806	520,946
118	0,201		0,302	0,000	10,00	3,020		2.168,826	520,946
119	0,152		0,353	0,000	10,00	3,530		2.172,356	520,946
120	0,000		0,152	0,000	10,00	1,520		2.173,876	520,946
121	0,276		0,276	0,000	10,00	2,761		2.176,637	520,946
122	0,371		0,647	0,000	10,00	6,471		2.183,108	520,946
123	0,213		0,584	0,000	10,00	5,837		2.188,945	520,946
124	0,112		0,325	0,000	10,00	3,247		2.192,192	520,946
125	0,000		0,112	0,000	10,00	1,120		2.193,312	520,946
126	0,221		0,221	0,000	10,00	2,210		2.195,522	520,946
127	0,412		0,633	0,000	10,00	6,330		2.201,852	520,946
128	0,570		0,982	0,000	10,00	9,820		2.211,672	520,946
129	0,270		0,840	0,000	10,00	8,400		2.220,072	520,946
130	0,340		0,610	0,000	10,00	6,100		2.226,172	520,946
131	0,281		0,621	0,000	10,00	6,210		2.232,382	520,946
132	0,123		0,404	0,000	10,00	4,037		2.236,419	520,946
133	0,143		0,266	0,000	10,00	2,657		2.239,076	520,946

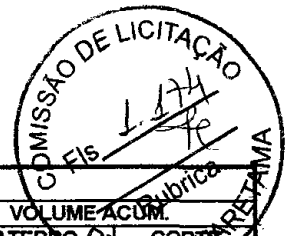


**CALCULO DE VOLUMES**

ESTACA	AREA		AREA ACUM.		SEMI	VOLUME		VOLUME ACUM.	
	ATERRO	CORTE	ATERRO	CORTE		ATERRO	CORTE	ATERRO	CORTE
134	0,303		0,446	0,000	10,00	4,461		2.243,537	520,946
135	0,354		0,657	0,000	10,00	6,572		2.250,109	520,946
136	0,524		0,878	0,000	10,00	8,781		2.258,890	520,946
137	0,288		0,812	0,000	10,00	8,120		2.267,010	520,946
138		1,414	0,288	1,414	10,00	2,880	14,140	2.269,890	535,086
139		2,394	0,000	3,808	10,00		38,080	2.269,890	573,166
140	0,000		0,000	2,394	10,00		23,940	2.269,890	597,106
141	0,000		0,000	0,000	10,00		0,000	2.269,890	597,106
142	0,184		0,184	0,000	10,00	1,840	0,000	2.271,730	597,106
143	0,000		0,184	0,000	10,00	1,840	0,000	2.273,570	597,106
144	0,000							2.273,570	597,106
145	0,131		0,131	0,000	10,00	1,311	0,000	2.274,881	597,106
146	0,454		0,585	0,000	10,00	5,852	0,000	2.280,733	597,106
147	0,392		0,846	0,000	10,00	8,463	0,000	2.289,195	597,106
148	0,262		0,654	0,000	10,00	6,543	0,000	2.295,739	597,106
149	0,261		0,523	0,000	10,00	5,233	0,000	2.300,972	597,106
150	0,262		0,523	0,000	10,00	5,232	0,000	2.306,204	597,106
151	0,453		0,715	0,000	10,00	7,151	0,000	2.313,355	597,106
152	0,435		0,888	0,000	10,00	8,880	0,000	2.322,235	597,106
153	0,475		0,910	0,000	10,00	9,100	0,000	2.331,335	597,106
154	0,327		0,802	0,000	10,00	8,021	0,000	2.339,356	597,106
155	0,275		0,602	0,000	10,00	6,021	0,000	2.345,377	597,106
156	0,273		0,548	0,000	10,00	5,480	0,000	2.350,857	597,106
157	0,373		0,646	0,000	10,00	6,460	0,000	2.357,317	597,106
158	0,373		0,746	0,000	10,00	7,460	0,000	2.364,777	597,106
159	0,344		0,717	0,000	10,00	7,172	0,000	2.371,949	597,106
160	0,344		0,688	0,000	10,00	6,884	0,000	2.378,833	597,106
161	0,332		0,676	0,000	10,00	6,762	0,000	2.385,595	597,106
162	0,346		0,678	0,000	10,00	6,781	0,000	2.392,377	597,106
163	0,442		0,788	0,000	10,00	7,883	0,000	2.400,260	597,106
164	0,303		0,745	0,000	10,00	7,453	0,000	2.407,713	597,106
165	0,825		1,128	0,000	10,00	11,280	0,000	2.418,993	597,106
166	1,741		2,566	0,000	10,00	25,659	0,000	2.444,652	597,106
167	2,081		3,822	0,000	10,00	38,220	0,000	2.482,872	597,106
168	1,912		3,993	0,000	10,00	39,930	0,000	2.522,802	597,106
169	1,981		3,893	0,000	10,00	38,930	0,000	2.561,732	597,106
170	1,185		3,166	0,000	10,00	31,659	0,000	2.593,391	597,106
171	0,288		1,473	0,000	10,00	14,731	0,000	2.608,122	597,106
172	0,262		0,551	0,000	10,00	5,505	0,000	2.613,627	597,106
173	0,222		0,484	0,000	10,00	4,843	0,000	2.618,470	597,106
174	0,182		0,404	0,000	10,00	4,041	0,000	2.622,511	597,106
175	0,224		0,406	0,000	10,00	4,063	0,000	2.626,574	597,106
176	0,318		0,542	0,000	10,00	5,423	0,000	2.631,997	597,106
177	0,236		0,554	0,000	10,00	5,543	0,000	2.637,540	597,106
178	0,356		0,592	0,000	10,00	5,924	0,000	2.643,464	597,106
179	0,176		0,532	0,000	10,00	5,321	0,000	2.648,785	597,106
180		0,935	0,176	0,935	10,00	1,759	9,350	2.650,544	606,456
181		0,428	0,000	1,363	10,00	0,000	13,631	2.650,544	620,087
182		0,844	0,000	1,272	10,00	0,000	12,722	2.650,544	632,809
183		0,876	0,000	1,720	10,00	0,000	17,203	2.650,544	650,012
184		1,179	0,000	2,055	10,00	0,000	20,553	2.650,544	670,565
185		1,458	0,000	2,637	10,00	0,000	26,371	2.650,544	696,936
186		1,890	0,000	3,348	10,00	0,000	33,480	2.650,544	730,416
187		1,450	0,000	3,340	10,00	0,000	33,400	2.650,544	763,816
188		1,290	0,000	2,740	10,00	0,000	27,400	2.650,544	791,216
189		0,462	0,000	1,752	10,00	0,000	17,520	2.650,544	808,736
190		1,414	0,000	1,876	10,00	0,000	18,760	2.650,544	827,496
191		1,900	0,000	3,314	10,00	0,000	33,140	2.650,544	860,636
192		2,394	0,000	4,294	10,00	0,000	42,940	2.650,544	903,576
193		2,895	0,000	5,289	10,00	0,000	52,890	2.650,544	956,466
194		2,394	0,000	5,289	10,00	0,000	52,890	2.650,544	1.009,356
195		1,900	0,000	4,294	10,00	0,000	42,940	2.650,544	1.052,296
196	0,000		0,000	1,900	10,00	0,000	19,000	2.650,544	1.071,296
197	0,289		0,289	0,000	10,00	2,890	0,000	2.653,434	1.071,296
198	0,928		1,217	0,000	10,00	12,171	0,000	2.665,605	1.071,296
199	1,084		2,012	0,000	10,00	20,121	0,000	2.685,726	1.071,296
200	0,829		1,913	0,000	10,00	19,128	0,000	2.704,854	1.071,296

  
**Thiago Douglas da Costa**  
 Engenheiro Civil  
 CREA 211501802-8

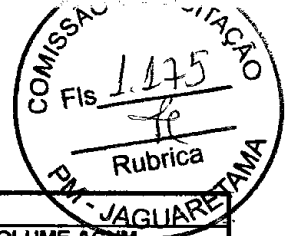
  
 TIACO



**CALCULO DE VOLUMES**


ESTACA	AREA		AREA ACUM.		SEMI DIST.	VOLUME		VOLUME ACUM.	
	ATERRO	CORTE	ATERRO	CORTE		ATERRO	CORTE	ATERRO	CORTE
201	0,105		0,934	0,000	10,00	9,338	0,000	2.714,192	1.071,296
202	0,127		0,232	0,000	10,00	2,318	0,000	2.716,510	1.071,296
203	0,117		0,244	0,000	10,00	2,438	0,000	2.718,948	1.071,296
204	0,000		0,117	0,000	10,00	1,170	0,000	2.720,118	1.071,296
205		1,921	0,000	1,921	10,00	0,000	19,210	2.720,118	1.090,506
206		2,798	0,000	4,719	10,00	0,000	47,190	2.720,118	1.137,696
207		1,976	0,000	4,774	10,00	0,000	47,740	2.720,118	1.185,436
208		0,000	0,000	1,976	10,00	0,000	19,760	2.720,118	1.205,196
209	0,561		0,561	0,000	10,00	5,610	0,000	2.725,728	1.205,196
210	0,000		0,561	0,000	10,00	5,610	0,000	2.731,338	1.205,196
211		0,935	0,000	0,935	10,00	0,000	9,350	2.731,338	1.214,546
212		0,935	0,000	1,870	10,00	0,000	18,700	2.731,338	1.233,246
213		0,000	0,000	0,935	10,00	0,000	9,350	2.731,338	1.242,596
214	1,910		1,910	0,000	10,00	19,100	0,000	2.750,438	1.242,596
215	0,836		2,746	0,000	10,00	27,462	0,000	2.777,900	1.242,596
216	1,377		2,213	0,000	10,00	22,133	0,000	2.800,033	1.242,596
217	1,650		3,027	0,000	10,00	30,271	0,000	2.830,304	1.242,596
218	1,177		2,827	0,000	10,00	28,270	0,000	2.858,574	1.242,596
219	1,448		2,625	0,000	10,00	26,250	0,000	2.884,824	1.242,596
220	1,145		2,593	0,000	10,00	25,930	0,000	2.910,754	1.242,596
221	0,665		1,810	0,000	10,00	18,102	0,000	2.928,856	1.242,596
222	0,000		0,665	0,000	10,00	6,652	0,000	2.935,508	1.242,596
223		0,380	0,000	0,380	10,00	0,000	3,800	2.935,508	1.246,396
224		0,866	0,000	1,246	10,00	0,000	12,463	2.935,508	1.258,859
225		0,976	0,000	1,843	10,00	0,000	18,427	2.935,508	1.277,286
226		0,414	0,000	1,390	10,00	0,000	13,904	2.935,508	1.291,190
227		0,341	0,000	0,755	10,00	0,000	7,550	2.935,508	1.298,740
228		0,423	0,000	0,764	10,00	0,000	7,640	2.935,508	1.306,380
229		0,117	0,000	0,540	10,00	0,000	5,400	2.935,508	1.311,780
230		0,284	0,000	0,401	10,00	0,000	4,011	2.935,508	1.315,791
231		0,258	0,000	0,542	10,00	0,000	5,421	2.935,508	1.321,212
232		0,298	0,000	0,556	10,00	0,000	5,560	2.935,508	1.326,772
233		0,445	0,000	0,743	10,00	0,000	7,430	2.935,508	1.334,202
234		0,627	0,000	1,072	10,00	0,000	10,720	2.935,508	1.344,922
235			0,000	0,627	10,00	0,000	6,270	2.935,508	1.351,192
236			0,000	0,000	10,00			2.935,508	1.351,192
237			0,000	0,000	10,00			2.935,508	1.351,192
238			0,000	0,000	10,00			2.935,508	1.351,192
239			0,000	0,000	10,00			2.935,508	1.351,192
240			0,000	0,000	10,00			2.935,508	1.351,192
241			0,000	0,000	10,00			2.935,508	1.351,192
242	7,224		7,224	0,000	10,00	72,241		3.007,749	1.351,192
243	10,589		17,813	0,000	10,00	178,131		3.185,880	1.351,192
244	16,126		26,715	0,000	10,00	267,151		3.453,031	1.351,192
245	8,278		24,404	0,000	10,00	244,041		3.697,072	1.351,192
246	0,528		8,806	0,000	10,00	88,062		3.785,134	1.351,192
247	0,428		0,956	0,000	10,00	9,564		3.794,698	1.351,192
248	0,316		0,744	0,000	10,00	7,442		3.802,140	1.351,192
249	0,318		0,634	0,000	10,00	6,341		3.808,481	1.351,192
250	0,308		0,626	0,000	10,00	6,262		3.814,743	1.351,192
251	0,328		0,636	0,000	10,00	6,362		3.821,105	1.351,192
252	0,452		0,780	0,000	10,00	7,802		3.828,907	1.351,192
253	0,451		0,903	0,000	10,00	9,034		3.837,942	1.351,192
254	0,340		0,792	0,000	10,00	7,915		3.845,857	1.351,192
255	0,341		0,681	0,000	10,00	6,813		3.852,670	1.351,192
256	0,103		0,444	0,000	10,00	4,440		3.857,110	1.351,192
257	0,342		0,444	0,000	10,00	4,444		3.861,554	1.351,192
258	0,321		0,663	0,000	10,00	6,627		3.868,181	1.351,192
259	0,431		0,752	0,000	10,00	7,523		3.875,704	1.351,192
260	0,301		0,732	0,000	10,00	7,322		3.883,026	1.351,192
261	0,389		0,690	0,000	10,00	6,901		3.889,927	1.351,192
262	0,438		0,827	0,000	10,00	8,271		3.898,198	1.351,192
263	0,488		0,926	0,000	10,00	9,261		3.907,459	1.351,192
264	0,496		0,984	0,000	10,00	9,840		3.917,299	1.351,192
265	0,446		0,942	0,000	10,00	9,420		3.926,719	1.351,192
266	0,352		0,798	0,000	10,00	7,981		3.934,700	1.351,192
267	0,302		0,654	0,000	10,00	6,541		3.941,241	1.351,192

*(Handwritten mark)*



**CALCULO DE VOLUMES**

ESTACA	AREA		AREA ACUM.		SEMI DIST.	VOLUME		VOLUME ACUM.	
	ATERRO	CORTE	ATERRO	CORTE		ATERRO	CORTE	ATERRO	CORTE
268	0,314		0,616	0,000	10,00	6,160		3.947,401	1.351,192
269	0,362		0,676	0,000	10,00	6,760		3.954,161	1.351,192
270	0,523		0,885	0,000	10,00	8,850		3.963,011	1.351,192
271	0,323		0,846	0,000	10,00	8,461		3.971,472	1.351,192
272	0,286		0,609	0,000	10,00	6,092		3.977,564	1.351,192
273	0,239		0,525	0,000	10,00	5,251		3.982,815	1.351,192
274	0,316		0,555	0,000	10,00	5,551		3.988,366	1.351,192
275	0,328		0,644	0,000	10,00	6,441		3.994,807	1.351,192
276	0,561		0,889	0,000	10,00	8,891		4.003,698	1.351,192
277	0,497		1,058	0,000	10,00	10,582		4.014,280	1.351,192
278	0,426		0,923	0,000	10,00	9,231		4.023,511	1.351,192
279	0,324		0,750	0,000	10,00	7,500		4.031,011	1.351,192
280	0,352		0,676	0,000	10,00	6,761		4.037,772	1.351,192
281	0,395		0,747	0,000	10,00	7,472		4.045,244	1.351,192
282	0,446		0,841	0,000	10,00	8,412		4.053,656	1.351,192
283	0,313		0,759	0,000	10,00	7,593		4.061,249	1.351,192
284	0,000		0,313	0,000	10,00	3,132		4.064,381	1.351,192
285		0,935	0,000	0,935	10,00		9,350	4.064,381	1.360,542
286		0,935	0,000	1,870	10,00		18,700	4.064,381	1.379,242
287		2,394	0,000	3,329	10,00		33,290	4.064,381	1.412,532
288	0,280		0,280	2,394	10,00	2,800	23,940	4.067,182	1.436,472
289	0,000		0,280	0,000	10,00	2,800	0,000	4.069,982	1.436,472
290		1,212	0,000	1,212	10,00		12,120	4.069,982	1.448,592
291		1,212	0,000	2,424	10,00		24,240	4.069,982	1.472,832
292		0,000	0,000	1,212	10,00		12,120	4.069,982	1.484,952
293	2,247		2,247	0,000	10,00	22,472	0,000	4.092,454	1.484,952
294	1,546		3,793	0,000	10,00	37,932	0,000	4.130,386	1.484,952
295	1,874		3,420	0,000	10,00	34,202	0,000	4.164,588	1.484,952
296	2,458		4,332	0,000	10,00	43,322	0,000	4.207,910	1.484,952
297	7,428		9,886	0,000	10,00	98,861	0,000	4.306,771	1.484,952
298	2,711		10,139	0,000	10,00	101,391	0,000	4.408,162	1.484,952
299	0,411		3,122	0,000	10,00	31,220	0,000	4.439,382	1.484,952
300	0,423		0,834	0,000	10,00	8,341	0,000	4.447,723	1.484,952
301	0,440		0,863	0,000	10,00	8,632	0,000	4.456,355	1.484,952
302	0,258		0,698	0,000	10,00	6,982	0,000	4.463,337	1.484,952
303	0,236		0,494	0,000	10,00	4,941	0,000	4.468,278	1.484,952
304	0,000		0,236	0,000	10,00	2,360	0,000	4.470,638	1.484,952
305		2,394	0,000	2,394	10,00	0,000	23,940	4.470,638	1.508,892
306		4,444	0,000	6,838	10,00	0,000	68,380	4.470,638	1.577,272
307		5,514	0,000	9,958	10,00	0,000	99,580	4.470,638	1.676,852
308		1,900	0,000	7,414	10,00	0,000	74,140	4.470,638	1.750,992
309		0,935	0,000	2,835	10,00	0,000	28,350	4.470,638	1.779,342
310		1,414	0,000	2,349	10,00	0,000	23,490	4.470,638	1.802,832
311		0,000	0,000	1,414	10,00	0,000	14,140	4.470,638	1.816,972
312	0,314		0,314	0,000	10,00	3,140	0,000	4.473,778	1.816,972
313	0,468		0,782	0,000	10,00	7,820	0,000	4.481,598	1.816,972
314	0,968		1,436	0,000	10,00	14,360	0,000	4.495,958	1.816,972
315	0,143		1,111	0,000	10,00	11,110	0,000	4.507,068	1.816,972
316	0,385		0,528	0,000	10,00	5,280	0,000	4.512,348	1.816,972
317	0,334		0,719	0,000	10,00	7,190	0,000	4.519,538	1.816,972
318	0,336		0,670	0,000	10,00	6,697	0,000	4.526,235	1.816,972
319	0,334		0,670	0,000	10,00	6,696	0,000	4.532,931	1.816,972
320	0,284		0,618	0,000	10,00	6,180	0,000	4.539,111	1.816,972
321	3,404		0,356	133,900	10,00	3,560	1.339,000	4.542,671	3.155,972
322	4,444		0,754	0,000	10,00	7,541	0,000	4.550,212	3.155,972
323	4,975		0,909	0,000	10,00	9,090	0,000	4.559,302	3.155,972
324	3,920		0,854	0,000	10,00	8,542	0,000	4.567,844	3.155,972
325	1,186		0,707	0,000	10,00	7,074	0,000	4.574,918	3.155,972
326	0,101		1,287	0,000	10,00	12,870	0,000	4.587,788	3.155,972
327	0,101		0,202	0,000	10,00	2,020	0,000	4.589,808	3.155,972
328	0,101		0,202	0,000	10,00	2,020	0,000	4.591,828	3.155,972
329	0,121		0,222	0,000	10,00	2,220	0,000	4.594,048	3.155,972
330	0,000		0,121	0,000	10,00	1,210	0,000	4.595,258	3.155,972
331	0,000		0,000	0,000	10,00	0,000	0,000	4.595,258	3.155,972
332	0,456		0,456	0,000	10,00	4,560	0,000	4.599,818	3.155,972
333	0,346		0,802	0,000	10,00	8,021	0,000	4.607,839	3.155,972
334	0,446		0,792	0,000	10,00	7,923	0,000	4.615,762	3.155,972

  
**Thiago Douglas da Costa**  
 Engenheiro Civil  
 CREA 211501802-8

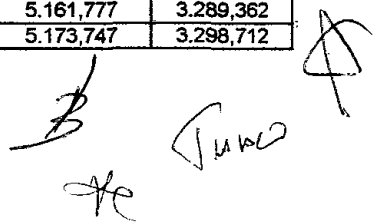




**CALCULO DE VOLUMES**

ESTACA	AREA		AREA ACUM.		SEMI DIST.	VOLUME		VOLUME ACUMULADA	
	ATERRO	CORTE	ATERRO	CORTE		ATERRO	CORTE	ATERRO	CORTE
335	0,328		0,774	0,000	10,00	7,742	0,000	4.623,504	3.155,972
336	0,143		0,471	0,000	10,00	4,712	0,000	4.628,216	3.155,972
337	0,368		0,511	0,000	10,00	5,113	0,000	4.633,329	3.155,972
338	0,476		0,844	0,000	10,00	8,441	0,000	4.641,770	3.155,972
339	0,406		0,882	0,000	10,00	8,820	0,000	4.650,590	3.155,972
340	0,332		0,738	0,000	10,00	7,380	0,000	4.657,970	3.155,972
341	0,180		0,512	0,000	10,00	5,121	0,000	4.663,091	3.155,972
342	0,120		0,300	0,000	10,00	3,003	0,000	4.666,094	3.155,972
343	0,210		0,330	0,000	10,00	3,304	0,000	4.669,398	3.155,972
344	0,260		0,470	0,000	10,00	4,702	0,000	4.674,100	3.155,972
345	0,278		0,538	0,000	10,00	5,380	0,000	4.679,480	3.155,972
346	0,382		0,660	0,000	10,00	6,600	0,000	4.686,080	3.155,972
347	0,348		0,730	0,000	10,00	7,300	0,000	4.693,380	3.155,972
348	0,358		0,706	0,000	10,00	7,062	0,000	4.700,442	3.155,972
349	0,236		0,594	0,000	10,00	5,944	0,000	4.706,386	3.155,972
350	0,282		0,518	0,000	10,00	5,184	0,000	4.711,570	3.155,972
351	0,403		0,685	0,000	10,00	6,853	0,000	4.718,423	3.155,972
352	0,351		0,754	0,000	10,00	7,542	0,000	4.725,965	3.155,972
353	0,304		0,655	0,000	10,00	6,553	0,000	4.732,518	3.155,972
354	0,390		0,694	0,000	10,00	6,942	0,000	4.739,460	3.155,972
355	0,801		1,191	0,000	10,00	11,911	0,000	4.751,371	3.155,972
356	0,354		1,155	0,000	10,00	11,552	0,000	4.762,924	3.155,972
357	0,413		0,768	0,000	10,00	7,675	0,000	4.770,599	3.155,972
358	0,321		0,735	0,000	10,00	7,346	0,000	4.777,945	3.155,972
359	0,281		0,602	0,000	10,00	6,022	0,000	4.783,967	3.155,972
360	0,302		0,583	0,000	10,00	5,830	0,000	4.789,797	3.155,972
361	0,307		0,609	0,000	10,00	6,090	0,000	4.795,887	3.155,972
362	0,396		0,703	0,000	10,00	7,031	0,000	4.802,918	3.155,972
363	0,435		0,831	0,000	10,00	8,311	0,000	4.811,229	3.155,972
364	0,397		0,832	0,000	10,00	8,320	0,000	4.819,549	3.155,972
365	0,328		0,725	0,000	10,00	7,250	0,000	4.826,799	3.155,972
366	0,726		1,054	0,000	10,00	10,540	0,000	4.837,339	3.155,972
367	0,398		1,124	0,000	10,00	11,240	0,000	4.848,579	3.155,972
368	0,498		0,896	0,000	10,00	8,960	0,000	4.857,539	3.155,972
369	0,978		1,476	0,000	10,00	14,760	0,000	4.872,299	3.155,972
370	0,596		1,574	0,000	10,00	15,740	0,000	4.888,039	3.155,972
371	0,541		1,137	0,000	10,00	11,370	0,000	4.899,409	3.155,972
372	0,948		1,489	0,000	10,00	14,890	0,000	4.914,299	3.155,972
373	0,498		1,446	0,000	10,00	14,455	0,000	4.928,754	3.155,972
374	0,388		0,886	0,000	10,00	8,855	0,000	4.937,609	3.155,972
375	1,752		2,140	0,000	10,00	21,400	0,000	4.959,009	3.155,972
376	0,255		2,007	0,000	10,00	20,072	0,000	4.979,081	3.155,972
377	0,175		0,431	0,000	10,00	4,305	0,000	4.983,386	3.155,972
378	0,239		0,415	0,000	10,00	4,146	0,000	4.987,532	3.155,972
379	0,589		0,829	0,000	10,00	8,286	0,000	4.995,818	3.155,972
380	0,564		1,154	0,000	10,00	11,535	0,000	5.007,353	3.155,972
381	0,481		1,045	0,000	10,00	10,452	0,000	5.017,805	3.155,972
382	0,122		0,603	0,000	10,00	6,031	0,000	5.023,836	3.155,972
383	0,736		0,858	0,000	10,00	8,577	0,000	5.032,413	3.155,972
384	1,131		1,867	0,000	10,00	18,665	0,000	5.051,078	3.155,972
385	0,801		1,932	0,000	10,00	19,320	0,000	5.070,398	3.155,972
386	0,192		0,993	0,000	10,00	9,931	0,000	5.080,329	3.155,972
387	0,425		0,617	0,000	10,00	6,170	0,000	5.086,499	3.155,972
388	0,378		0,803	0,000	10,00	8,030	0,000	5.094,529	3.155,972
389	0,348		0,726	0,000	10,00	7,260	0,000	5.101,789	3.155,972
390	0,703		1,051	0,000	10,00	10,510	0,000	5.112,299	3.155,972
391	0,566		1,269	0,000	10,00	12,691	0,000	5.124,990	3.155,972
392	0,545		1,111	0,000	10,00	11,111	0,000	5.136,101	3.155,972
393	0,386		0,931	0,000	10,00	9,308	0,000	5.145,409	3.155,972
394	0,348		0,734	0,000	10,00	7,339	0,000	5.152,748	3.155,972
395	0,136		0,484	0,000	10,00	4,843	0,000	5.157,591	3.155,972
396	0,141		0,277	0,000	10,00	2,774	0,000	5.160,365	3.155,972
397		1,414	0,141	1,414	10,00	1,412	14,140	5.161,777	3.170,112
398		2,394	0,000	3,808	10,00		38,080	5.161,777	3.208,192
399		2,394	0,000	4,788	10,00		47,880	5.161,777	3.256,072
400		0,935	0,000	3,329	10,00		33,290	5.161,777	3.289,362
401	1,197		1,197	0,935	10,00	11,970	9,350	5.173,747	3.298,712

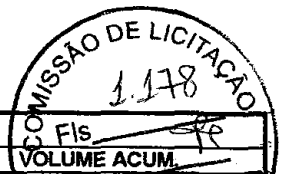
  
**Thiago Douglas da Costa**  
 Engenheiro Civil  
 CREA 211501802-8





**CALCULO DE VOLUMES**

ESTACA	AREA		AREA ACUM.		SEMI	VOLUME		VOLUME ACUM.	
	ATERRO	CORTE	ATERRO	CORTE	DIST.	ATERRO	CORTE	ATERRO	CORTE
402	1,100		2,297	0,000	10,00	22,970	0,000	5.196,717	3.298,712
403	1,706		2,806	0,000	10,00	28,060	0,000	5.224,777	3.298,712
404	2,020		3,726	0,000	10,00	37,260	0,000	5.262,037	3.298,712
405	1,708		3,728	0,000	10,00	37,280	0,000	5.299,317	3.298,712
406	0,389		2,097	0,000	10,00	20,971	0,000	5.320,288	3.298,712
407	0,446		0,835	0,000	10,00	8,351	0,000	5.328,639	3.298,712
408	0,304		0,750	0,000	10,00	7,501	0,000	5.336,140	3.298,712
409	0,542		0,846	0,000	10,00	8,462	0,000	5.344,602	3.298,712
410	0,452		0,994	0,000	10,00	9,940	0,000	5.354,542	3.298,712
411	0,648		1,100	0,000	10,00	11,000	0,000	5.365,542	3.298,712
412	0,452		1,100	0,000	10,00	11,002	0,000	5.376,545	3.298,712
413	0,361		0,813	0,000	10,00	8,133	0,000	5.384,678	3.298,712
414	0,289		0,650	0,000	10,00	6,503	0,000	5.391,181	3.298,712
415	0,196		0,485	0,000	10,00	4,853	0,000	5.396,034	3.298,712
416	0,637		0,833	0,000	10,00	8,333	0,000	5.404,367	3.298,712
417	0,144		0,781	0,000	10,00	7,813	0,000	5.412,180	3.298,712
418	0,778		0,922	0,000	10,00	9,223	0,000	5.421,403	3.298,712
419	0,646		1,424	0,000	10,00	14,242	0,000	5.435,645	3.298,712
420	0,725		1,371	0,000	10,00	13,712	0,000	5.449,357	3.298,712
421	0,336		1,061	0,000	10,00	10,613	0,000	5.459,970	3.298,712
422	0,364		0,700	0,000	10,00	7,003	0,000	5.466,973	3.298,712
423	0,226		0,590	0,000	10,00	5,902	0,000	5.472,875	3.298,712
424	0,186		0,412	0,000	10,00	4,122	0,000	5.476,997	3.298,712
425	0,434		0,620	0,000	10,00	6,202	0,000	5.483,199	3.298,712
426	0,596		1,030	0,000	10,00	10,302	0,000	5.493,501	3.298,712
427	0,729		1,325	0,000	10,00	13,251	0,000	5.506,752	3.298,712
428	1,072		1,801	0,000	10,00	18,011	0,000	5.524,763	3.298,712
429	0,926		1,998	0,000	10,00	19,982	0,000	5.544,746	3.298,712
430	0,685		1,611	0,000	10,00	16,112	0,000	5.560,858	3.298,712
431	0,352		1,037	0,000	10,00	10,371	0,000	5.571,229	3.298,712
432	0,497		0,849	0,000	10,00	8,490	0,000	5.579,719	3.298,712
433	0,286		0,783	0,000	10,00	7,827	0,000	5.587,546	3.298,712
434	0,000		0,286	0,000	10,00	2,857	0,000	5.590,403	3.298,712
435		1,900	0,000	1,900	10,00	0,000	19,000	5.590,403	3.317,712
436		3,404	0,000	5,304	10,00	0,000	53,040	5.590,403	3.370,752
437	0,601		0,601	3,404	10,00	6,010	34,040	5.596,413	3.404,792
438	1,082		1,683	0,000	10,00	16,830	0,000	5.613,243	3.404,792
439	2,385		3,467	0,000	10,00	34,672	0,000	5.647,915	3.404,792
440	0,631		3,016	0,000	10,00	30,164	0,000	5.678,079	3.404,792
441	0,321		0,952	0,000	10,00	9,523	0,000	5.687,602	3.404,792
442	0,151		0,472	0,000	10,00	4,720	0,000	5.692,321	3.404,792
443	0,210		0,361	0,000	10,00	3,609	0,000	5.695,931	3.404,792
444	0,209		0,419	0,000	10,00	4,190	0,000	5.700,121	3.404,792
445	0,211		0,420	0,000	10,00	4,200	0,000	5.704,321	3.404,792
446	0,198		0,409	0,000	10,00	4,090	0,000	5.708,411	3.404,792
447	0,211		0,409	0,000	10,00	4,090	0,000	5.712,501	3.404,792
448	0,208		0,419	0,000	10,00	4,191	0,000	5.716,692	3.404,792
449	0,194		0,402	0,000	10,00	4,021	0,000	5.720,713	3.404,792
450	0,192		0,386	0,000	10,00	3,856	0,000	5.724,569	3.404,792
451	0,442		0,634	0,000	10,00	6,335	0,000	5.730,904	3.404,792
452	0,392		0,834	0,000	10,00	8,340	0,000	5.739,244	3.404,792
453	0,391		0,783	0,000	10,00	7,833	0,000	5.747,077	3.404,792
454	0,412		0,803	0,000	10,00	8,033	0,000	5.755,110	3.404,792
455	0,441		0,853	0,000	10,00	8,532	0,000	5.763,642	3.404,792
456	0,585		1,026	0,000	10,00	10,261	0,000	5.773,903	3.404,792
457	0,542		1,127	0,000	10,00	11,270	0,000	5.785,173	3.404,792
458	0,492		1,034	0,000	10,00	10,340	0,000	5.795,513	3.404,792
459	0,445		0,937	0,000	10,00	9,370	0,000	5.804,883	3.404,792
460	0,448		0,893	0,000	10,00	8,930	0,000	5.813,813	3.404,792
461	0,582		1,030	0,000	10,00	10,300	0,000	5.824,113	3.404,792
462	0,483		1,065	0,000	10,00	10,650	0,000	5.834,763	3.404,792
463	0,588		1,071	0,000	10,00	10,711	0,000	5.845,474	3.404,792
464	0,566		1,154	0,000	10,00	11,542	0,000	5.857,016	3.404,792
465	0,571		1,137	0,000	10,00	11,372	0,000	5.868,388	3.404,792
466	0,544		1,115	0,000	10,00	11,152	0,000	5.879,540	3.404,792
467	0,432		0,976	0,000	10,00	9,761	0,000	5.889,301	3.404,792
468	0,476		0,908	0,000	10,00	9,080	0,000	5.898,381	3.404,792



**CALCULO DE VOLUMES**

AREA			ÁREA ACUM.		SEMI	VOLUME		
ESTACA	ATERRO	CORTE	ATERRO	CORTE	DIST.	ATERRO	CORTE	VOLUME ACUM.
469	0,457		0,933	0,000	10,00	9,333	0,000	5.973,314
470	0,476		0,934	0,000	10,00	9,336	0,000	5.917,050
471	0,161		0,637	0,000	10,00	6,374	0,000	5.923,424
472	0,178		0,339	0,000	10,00	3,391	0,000	5.926,815
473	0,436		0,614	0,000	10,00	6,141	0,000	5.932,956
474	0,254		0,690	0,000	10,00	6,902	0,000	5.939,859
475	0,193		0,447	0,000	10,00	4,471	0,000	5.944,330
476	0,181		0,374	0,000	10,00	3,740	0,000	5.948,070
477	0,146		0,327	0,000	10,00	3,270	0,000	5.951,340
478	0,145		0,291	0,000	10,00	2,910	0,000	5.954,250
479	0,281		0,426	0,000	10,00	4,261	0,000	5.958,511
480	0,471		0,752	0,000	10,00	7,522	0,000	5.966,033
481	0,558		1,029	0,000	10,00	10,292	0,000	5.976,325
482	0,516		1,074	0,000	10,00	10,742	0,000	5.987,067
483	0,358		0,874	0,000	10,00	8,740	0,000	5.995,807
484	0,215		0,573	0,000	10,00	5,730	0,000	6.001,537
485	0,149		0,364	0,000	10,00	3,641	0,000	6.005,178
486	0,489		0,638	0,000	10,00	6,381	0,000	6.011,560
487	0,231		0,720	0,000	10,00	7,203	0,000	6.018,763
488	0,000		0,231	0,000	10,00	2,312	0,000	6.021,075
489	0,000		0,000	0,000	10,00		0,000	6.021,075
490	0,000		0,000	0,000	10,00		0,000	6.021,075
491	0,000		0,000	0,000	10,00		0,000	6.021,075
492	0,000		0,000	0,000	10,00		0,000	6.021,075
493	0,000		0,000	0,000	10,00		0,000	6.021,075
494	0,000		0,000	0,000	10,00		0,000	6.021,075
495	0,000		0,000	0,000	10,00		0,000	6.021,075
496	0,000		0,000	0,000	10,00		0,000	6.021,075
497	0,000		0,000	0,000	10,00		0,000	6.021,075
498	0,000		0,000	0,000	10,00		0,000	6.021,075
499	0,000		0,000	0,000	10,00		0,000	6.021,075
500	0,000		0,000	0,000	10,00		0,000	6.021,075
501	0,000		0,000	0,000	10,00		0,000	6.021,075
502	0,000		0,000	0,000	10,00		0,000	6.021,075
503	0,000		0,000	0,000	10,00		0,000	6.021,075
504	0,561		0,561	0,000	10,00	5,610	0,000	6.026,685
505	0,245		0,806	0,000	10,00	8,062	0,000	6.034,747
506	0,126		0,371	0,000	10,00	3,713	0,000	6.038,460
507	0,346		0,472	0,000	10,00	4,722	0,000	6.043,182
508	0,234		0,580	0,000	10,00	5,802	0,000	6.048,984
509	0,362		0,596	0,000	10,00	5,962	0,000	6.054,946
510	0,309		0,671	0,000	10,00	6,711	0,000	6.061,657
511	0,248		0,557	0,000	10,00	5,568	0,000	6.067,225
512		1,589	0,248	1,589	10,00	2,478	15,890	6.069,703
513		1,589	0,000	3,178	10,00		31,780	6.069,703
514		2,405	0,000	3,994	10,00		39,940	6.069,703
515		0,000	0,000	2,405	10,00		24,050	6.069,703
516	1,477		1,477	0,000	10,00	14,770	0,000	6.084,473
517	2,885		4,362	0,000	10,00	43,620	0,000	6.128,093
518	2,358		5,243	0,000	10,00	52,430	0,000	6.180,523
519	0,878		3,236	0,000	10,00	32,360	0,000	6.212,883
520	1,438		2,316	0,000	10,00	23,160	0,000	6.236,043
521	0,122		1,560	0,000	10,00	15,600	0,000	6.251,643
522	0,103		0,225	0,000	10,00	2,250	0,000	6.253,893
523	0,141		0,244	0,000	10,00	2,441	0,000	6.256,334
524	0,102		0,243	0,000	10,00	2,432	0,000	6.258,766
525	0,120		0,222	0,000	10,00	2,222	0,000	6.260,988
526	0,498		0,618	0,000	10,00	6,181	0,000	6.267,169
527	0,498		0,996	0,000	10,00	9,964	0,000	6.277,133
528	0,565		1,063	0,000	10,00	10,634	0,000	6.287,767
529	0,468		1,033	0,000	10,00	10,332	0,000	6.298,099
530	0,499		0,967	0,000	10,00	9,673	0,000	6.307,772
531	0,652		1,151	0,000	10,00	11,511	0,000	6.319,283
532	0,641		1,293	0,000	10,00	12,930	0,000	6.332,213
533	0,452		1,093	0,000	10,00	10,930	0,000	6.343,143
534	0,252		0,704	0,000	10,00	7,040	0,000	6.350,183
535	0,813		1,065	0,000	10,00	10,649	0,000	6.360,832

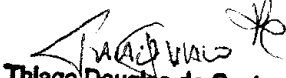
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**CALCULO DE VOLUMES**

DE LICITAÇÃO  
12940

ESTACA	AREA		AREA ACUM.		SEMI DIST.	VOLUME		VOLUME ACUM.	
	ATERRO	CORTE	ATERRO	CORTE		ATERRO	CORTE	ATERRO	CORTE
536	0,215		1,028	0,000	10,00	10,281	0,000	6,371,431	3,516,452
537	0,228		0,443	0,000	10,00	4,434	0,000	6,375,864	3,516,452
538	0,215		0,443	0,000	10,00	4,427	0,000	6,379,291	3,516,452
539	0,118		0,333	0,000	10,00	3,325	0,000	6,382,799	3,516,452
540	0,116		0,234	0,000	10,00	2,336	0,000	6,385,635	3,516,452
541	0,447		0,563	0,000	10,00	5,626	0,000	6,391,261	3,516,452
542	0,448		0,895	0,000	10,00	8,950	0,000	6,400,211	3,516,452
543	0,146		0,594	0,000	10,00	5,941	0,000	6,406,152	3,516,452
544	1,226		1,372	0,000	10,00	13,723	0,000	6,419,875	3,516,452
545	1,235		2,462	0,000	10,00	24,615	0,000	6,444,490	3,516,452
546	0,201		1,437	0,000	10,00	14,365	0,000	6,458,855	3,516,452
547	0,200		0,401	0,000	10,00	4,012	0,000	6,462,867	3,516,452
548	0,205		0,405	0,000	10,00	4,052	0,000	6,466,919	3,516,452
549	0,123		0,328	0,000	10,00	3,282	0,000	6,470,201	3,516,452
550	0,216		0,339	0,000	10,00	3,390	0,000	6,473,591	3,516,452
551	0,677		0,893	0,000	10,00	8,930	0,000	6,482,521	3,516,452
552	0,659		1,336	0,000	10,00	13,360	0,000	6,495,881	3,516,452
553	0,564		1,223	0,000	10,00	12,229	0,000	6,508,110	3,516,452
554	0,471		1,035	0,000	10,00	10,349	0,000	6,518,459	3,516,452
555	0,486		0,957	0,000	10,00	9,571	0,000	6,528,030	3,516,452
556	0,539		1,025	0,000	10,00	10,251	0,000	6,538,281	3,516,452
557	0,694		1,233	0,000	10,00	12,330	0,000	6,550,611	3,516,452
558	0,442		1,136	0,000	10,00	11,360	0,000	6,561,971	3,516,452
559	0,541		0,983	0,000	10,00	9,832	0,000	6,571,803	3,516,452
560	0,452		0,993	0,000	10,00	9,934	0,000	6,581,737	3,516,452
561	0,481		0,933	0,000	10,00	9,333	0,000	6,591,070	3,516,452
562	0,441		0,922	0,000	10,00	9,222	0,000	6,600,292	3,516,452
563	0,433		0,874	0,000	10,00	8,742	0,000	6,609,034	3,516,452
564	0,109		0,542	0,000	10,00	5,420	0,000	6,614,455	3,516,452
565	0,000		0,109	0,000	10,00	1,089	0,000	6,615,544	3,516,452
566	0,352		0,352	0,000	10,00	3,522	0,000	6,619,066	3,516,452
567	0,306		0,658	0,000	10,00	6,583	0,000	6,625,649	3,516,452
568	0,261		0,567	0,000	10,00	5,672	0,000	6,631,321	3,516,452
569	0,261		0,522	0,000	10,00	5,221	0,000	6,636,542	3,516,452
570	1,238		1,499	0,000	10,00	14,990	0,000	6,651,532	3,516,452
571	0,322		1,560	0,000	10,00	15,595	0,000	6,667,127	3,516,452
572	0,341		0,663	0,000	10,00	6,626	0,000	6,673,753	3,516,452
573	0,000		0,341	0,000	10,00	3,411	0,000	6,677,165	3,516,452
<b>LIMPA RODA</b>									
37+15m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	21,612	0,000
66+1m - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	43,224	0,000
68+1m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	64,836	0,000
75+10m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	86,448	0,000
82+18m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	108,060	0,000
83+18m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	129,672	0,000
111+4m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	151,284	0,000
114+14m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	172,896	0,000
117+4m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	194,508	0,000
119+8m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	216,120	0,000
120+14m - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	237,732	0,000
124+13m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	259,344	0,000
130+12m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	280,956	0,000
149+6m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	302,568	0,000
149+6m - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	324,180	0,000
163+6m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	345,792	0,000
163+6m - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	367,404	0,000
197+4m - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	389,016	0,000
235+2m - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	410,628	0,000
249+2m - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	432,240	0,000
268+3m - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	453,852	0,000
288+2m - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	475,464	0,000
361+19m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	497,076	0,000
421+9m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	518,688	0,000
469+6m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	540,300	0,000
486+17m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	561,912	0,000
486+17m - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	583,524	0,000
506+3m - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	605,136	0,000
507+4m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	626,748	0,000
522 - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	648,360	0,000
539+17m - LE	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	669,972	0,000
558+11m - LD	160,000	0,000	320,000	0,000	0,0675375	21,612	0,000	691,584	0,000
<b>VOLUME DO ATERRO</b>							691,584		

  
**Thiago Douglas da Costa**  
 Engenheiro Civil  
 CREA 211501802-8

# RESUMO GERAL DO MOVIMENTO DE TERRA

PROCEDÊNCIA DO MATERIAL ESCAVADO				EMPRESTÍMO				DESTINO DO MATERIAL ESCAVADO				BOTA FORA				
CORTE				EMPRÉSTIMO				ATERRO				BOTA FORA				
LOCALIZAÇÃO ESTACAS	1ª	2ª	3ª	EMP	LOCALIZAÇÃO ESTACA	D.F. (KM)	VOLUME (m³)	LOCALIZAÇÃO ESTACAS	D.F. (KM)	VOLUME (m³)	D.M.T. (KM)	LOCALIZAÇÃO DEP	LOCALIZAÇÃO EST	D.F. (KM)	VOLUME (m³)	D.M.T. (KM)
03	08	108,724		E-01	170	0,020	22,440	00	0,020	22,440	3,390	E-01	170	0,020	-	3,390
24	27	25,370		E-01	170	0,200	254,942	10	0,200	254,942	3,170	E-01	170	0,020	-	3,170
33	36	66,660		E-01	170	0,200	28,466	15	0,200	28,466	3,070	E-01	170	0,020	-	3,070
66	66	52,834		E-01	170	0,200	36,703	20	0,200	36,703	2,870	E-01	170	0,020	-	2,870
70	70	9,660		E-01	170	0,200	146,716	27	0,200	146,716	2,810	E-01	170	0,020	-	2,810
76	76	21,336		E-01	170	0,200	91,840	35	0,200	91,840	2,970	E-01	170	0,020	-	2,970
82	86	86,780		E-01	170	0,020	30,703	40	0,200	30,703	2,570	E-01	170	0,020	-	2,570
103	108	48,762	102,58	E-01	170	0,020	23,020	45	0,020	23,020	2,470	E-01	170	0,020	-	2,470
137	140		76,160	E-01	170	0,020	36,366	50	0,020	36,366	2,370	E-01	170	0,020	-	2,370
179	185	98,830		E-01	170	0,020	23,021	55	0,020	23,021	2,280	E-01	170	0,020	-	2,280
186	190	130,660		E-01	170	0,020	44,034	60	0,020	44,034	2,070	E-01	170	0,020	-	2,070
196	196	73,140	170,660	E-01	170	0,020	705,876	69	0,020	705,876	1,980	E-01	170	0,020	-	1,980
204	208	133,600		E-01	170	0,020	167,462	78	0,020	167,462	1,760	E-01	170	0,020	-	1,760
210	213	37,400		E-01	170	0,020	84,984	83	0,020	84,984	1,510	E-01	170	0,020	-	1,510
222	228	63,784		E-01	170	0,020	36,284	88	0,020	36,284	1,400	E-01	170	0,020	-	1,400
228	235	44,812		E-01	170	0,020	234,746	88	0,020	234,746	1,230	E-01	170	0,020	-	1,230
				E-01	170	0,020	20,581	98	0,020	20,581	1,130	E-01	170	0,020	-	1,130
				E-01	170	0,020	17,303	104	0,020	17,303	1,030	E-01	170	0,020	-	1,030
				E-01	170	0,020	16,744	107	0,020	16,744	0,930	E-01	170	0,020	-	0,930
				E-01	170	0,020	34,587	112	0,020	34,587	0,830	E-01	170	0,020	-	0,830
				E-01	170	0,020	33,470	117	0,020	33,470	0,720	E-01	170	0,020	-	0,720
				E-01	170	0,020	3,740	122	0,020	3,740	0,580	E-01	170	0,020	-	0,580
				E-01	170	0,020	32,635	127	0,020	32,635	0,480	E-01	170	0,020	-	0,480
				E-01	170	0,020	38,173	132	0,020	38,173	0,370	E-01	170	0,020	-	0,370
				E-01	170	0,020	33,456	138	0,020	33,456	0,270	E-01	170	0,020	-	0,270
				E-01	170	0,020	40,169	143	0,020	40,169	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	174,366	144	0,020	174,366	0,070	E-01	170	0,020	-	0,070
				E-01	170	0,020	33,163	155	0,020	33,163	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	23,968	165	0,020	23,968	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	3,740	166	0,020	3,740	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	32,635	175	0,020	32,635	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	38,173	180	0,020	38,173	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	33,456	180	0,020	33,456	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	40,169	180	0,020	40,169	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	174,366	180	0,020	174,366	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	33,163	180	0,020	33,163	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	23,968	180	0,020	23,968	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	3,740	180	0,020	3,740	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	32,635	180	0,020	32,635	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	38,173	180	0,020	38,173	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	33,456	180	0,020	33,456	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	40,169	180	0,020	40,169	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	174,366	180	0,020	174,366	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	33,163	180	0,020	33,163	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	23,968	180	0,020	23,968	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	3,740	180	0,020	3,740	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	32,635	180	0,020	32,635	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	38,173	180	0,020	38,173	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	33,456	180	0,020	33,456	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	40,169	180	0,020	40,169	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	174,366	180	0,020	174,366	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	33,163	180	0,020	33,163	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	23,968	180	0,020	23,968	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	3,740	180	0,020	3,740	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	32,635	180	0,020	32,635	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	38,173	180	0,020	38,173	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	33,456	180	0,020	33,456	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	40,169	180	0,020	40,169	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	174,366	180	0,020	174,366	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	33,163	180	0,020	33,163	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	23,968	180	0,020	23,968	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	3,740	180	0,020	3,740	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	32,635	180	0,020	32,635	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	38,173	180	0,020	38,173	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	33,456	180	0,020	33,456	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	40,169	180	0,020	40,169	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	174,366	180	0,020	174,366	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	33,163	180	0,020	33,163	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	23,968	180	0,020	23,968	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	3,740	180	0,020	3,740	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	32,635	180	0,020	32,635	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	38,173	180	0,020	38,173	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	33,456	180	0,020	33,456	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	40,169	180	0,020	40,169	0,170	E-01	170	0,020	-	0,170
				E-01	170	0,020	174,366	180	0,020	174,366	0,170	E-01	170	0,020	-	

# RESUMO GERAL DO MOVIMENTO DE TERRA

PROCEDÊNCIA DO MATERIAL ESCAVADO				EMPRESTIMO				DESTINO DO MATERIAL ESCAVADO				BOTA FORA				
CORTE				CORTE				ATERRO				ATERRO				
LOCALIZAÇÃO ESTACAS	VOLUME (m³)	1ª	2ª	3ª	EMP	LOCALIZAÇÃO ESTACA	D.F. (KM)	VOLUME (m³)	1ª	LOCALIZAÇÃO ESTACAS	D.M.T. (KM)	VOLUME (m³)	D.F. (KM)	LOCALIZAÇÃO DEP	D.M.T. (KM)	
284	65,380				E-02	270	0,020	30,365	255	280	0,270	30,366				
288	48,480				E-02	270	0,020	43,893	280	285	0,170	43,893				
304	89,800		232,420		E-02	270	0,020	38,292	286	270	0,070	38,292				
					E-02	270	0,020	31,706	275	280	0,070	31,706				
					E-02	270	0,020	42,985	275	280	0,170	42,986				
					E-02	270	0,020	26,809	280	284	0,260	26,809				
					E-02	270	0,020	5,810	287	289	0,380	5,810			0,540	
					E-02	270	0,020	338,380	292	288	0,520	338,380			0,430	
					E-02	270	0,020	62,476	298	304	0,620	62,476				
					E-02	270	0,020	49,720	311	315	0,680	49,720				
					E-02	270	0,020	32,043	320	320	0,970	32,043				
					E-02	270	0,020	35,807	320	325	1,070	35,807				
					E-02	270	0,020	20,340	325	330	1,170	20,340				
					E-02	270	0,020	28,246	330	335	1,270	28,246				
					E-02	270	0,020	34,466	335	340	1,370	34,466				
					E-02	270	0,020	21,820	340	345	1,470	21,820				
					E-02	270	0,020	32,090	345	350	1,570	32,090				
					E-02	270	0,020	38,801	350	355	1,670	38,801				
388	142,740				E-03	385	0,020	38,426	355	360	0,170	38,426				
					E-03	385	0,020	38,982	360	365	0,070	38,982				
					E-03	385	0,020	60,220	365	370	0,070	60,220				
					E-03	385	0,020	70,970	370	376	0,170	70,970				
					E-03	385	0,020	48,344	375	380	0,270	48,344				
					E-03	385	0,020	63,045	380	385	0,370	63,045				
					E-03	385	0,020	41,901	385	390	0,470	41,901				
					E-03	385	0,020	40,448	390	394	0,580	40,448				
					E-03	385	0,020	9,029	384	397	0,630	9,029				
401					E-03	385	0,020	143,420	400	405	0,770	143,420			0,690	
					E-03	385	0,020	66,228	405	411	0,890	66,228				
					E-03	385	0,020	46,816	411	417	1,000	46,816				
					E-03	385	0,020	37,177	417	420	1,090	37,177				
					E-04	445	0,020	33,842	420	425	0,470	33,842				
					E-04	445	0,020	77,859	425	430	0,370	77,859				
					E-04	445	0,020	28,545	430	434	0,280	28,545				
434	108,080				E-04	445	0,020	177,016	437	440	0,150	177,016			0,210	
					E-04	445	0,020	27,241	440	445	0,070	27,241				
					E-04	445	0,020	20,242	445	450	0,670	20,242				
					E-04	445	0,020	38,073	450	455	0,170	38,073				
					E-04	445	0,020	50,171	455	460	0,270	50,171				
					E-04	445	0,020	54,575	460	465	0,370	54,575				
					E-04	445	0,020	48,892	465	470	0,470	48,892				
					E-04	445	0,020	27,280	470	475	0,570	27,280				
					E-04	445	0,020	21,703	475	480	0,670	21,703				
					E-04	445	0,020	39,148	480	485	0,770	39,148				
					E-04	445	0,020	15,897	485	488	0,850	15,897				
488					BARRAGEM DE CONCRETO SANTA BARBARA											
					E-05	610	0,020	27,909	503	508	0,110	27,909				



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 Engenheiro Civil  
 CREA 211501802-8

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# RESUMO GERAL DO MOVIMENTO DE TERRA

PROCEDÊNCIA DO MATERIAL ESCAVADO				DESTINO DO MATERIAL ESCAVADO			
CORTE		EMPRESTIMO		ATERRO		BOTA FORA	
LOCALIZAÇÃO ESTACAS	VOLUME (m³)	LOCALIZAÇÃO ESTACA	D.F. (KM)	LOCALIZAÇÃO ESTACAS	VOLUME (m³)	LOCALIZAÇÃO EST	D.F. (KM)
1º	2º	3º	0,020	508	512	DEP	0,040
519	111,690			515	193,340	E-05	0,170
				520	24,945	E-05	0,270
				525	46,784	E-05	0,370
				530	53,080	E-05	0,470
				535	24,803	E-05	0,570
				540	59,855	E-05	0,870
				545	29,101	E-05	0,770
				550	54,839	E-05	0,870
				555	49,707	E-05	0,970
				560	33,807	E-05	1,070
				565	20,649	E-05	1,160
				569	35,772	E-05	1,250
INTERSEÇÃO COM A CE-371 AO POLO BEZERRA DE MENEZES				00	152,250	03	3,400
LIMPA RODAS							
37 + 15m		E-01	0,020	37 + 15m	21,612	E-01	2,70
66 + 1m		E-01	0,020	66 + 1m	21,612	E-01	2,10
68 + 1m		E-01	0,020	68 + 1m	21,612	E-01	2,06
75 + 10m		E-01	0,020	75 + 10m	21,612	E-01	1,91
82 + 18m		E-01	0,020	82 + 18m	21,612	E-01	1,76
83 + 18m		E-01	0,020	83 + 18m	21,612	E-01	1,74
111 + 4m		E-01	0,020	111 + 4m	21,612	E-01	1,20
114 + 14m		E-01	0,020	114 + 14m	21,612	E-01	1,13
117 + 4m		E-01	0,020	117 + 4m	21,612	E-01	1,08
119 + 8m		E-01	0,020	119 + 8m	21,612	E-01	1,03
120 + 14m		E-01	0,020	120 + 14m	21,612	E-01	1,01
124 + 13m		E-01	0,020	124 + 13m	21,612	E-01	0,95
130 + 12m		E-01	0,020	130 + 12m	21,612	E-01	0,81
156 + 6m		E-01	0,020	156 + 6m	21,612	E-01	0,21
159 + 6m		E-01	0,020	159 + 6m	21,612	E-01	0,13
163 + 6m		E-01	0,020	163 + 6m	21,612	E-01	0,13
187 + 4m		E-01	0,020	187 + 4m	21,612	E-01	0,54
235 + 2m		E-02	0,020	235 + 2m	21,612	E-02	0,70
248 + 2m		E-02	0,020	248 + 2m	21,612	E-02	0,42
268 + 3m		E-02	0,020	268 + 3m	21,612	E-02	0,04
268 + 2m		E-02	0,020	268 + 2m	21,612	E-02	0,36
361 + 18m		E-03	0,020	361 + 18m	21,612	E-03	0,06



  
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